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# EVALUATION OF THE 175/40 INITIAL ENTRY ROTARY WING FLIGHT TRAINING PROGRAM

AD A092021

## FINAL REPORT



DIRECTORATE OF EVALUATION AND STANDARDIZATION

FORT RUCKER, ALABAMA

MAY 1979



80 10 6 071

Unclassified (14 SEVILLE-TR-79-02 VOL-2)

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

## REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: TR 79-02
2. GOVT ACCESSION NO.: AD-A092021
3. RECIPIENT'S CATALOG NUMBER:

4. TITLE (and Subtitle): (6) Evaluation of the 175/40 Initial Entry Rotary Wing Flight Training Program, Volume II. Evaluation Report,
5. TYPE OF REPORT & PERIOD COVERED: (9) Final Report. 19 May 78-19 May 79.
6. PERFORMING ORG. REPORT NUMBER:

7. AUTHOR(s): USAAVNC Evaluation Team (15)
8. CONTRACT OR GRANT NUMBER(s): MDA903-78-C-2008

9. PERFORMING ORGANIZATION NAME AND ADDRESS:
Seville Research Corporation
400 Plaza Building
Pensacola, Florida 32505

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: (16) 63743A-2Q763743A772-03

11. CONTROLLING OFFICE NAME AND ADDRESS:
Directorate of Evaluation & Standardization (11)
U.S. Army Aviation Center
Fort Rucker, Alabama 36362

12. REPORT DATE: May 1979
13. NUMBER OF PAGES: Volume II-233

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office):
U.S. Army Research Institute (12) 240
Fort Rucker Field Unit
Fort Rucker, Alabama 36362

15. SECURITY CLASS. (of this report): (17) 03
15a. DECLASSIFICATION/DOWNGRADING SCHEDULE:

16. DISTRIBUTION STATEMENT (of this Report)

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DTIC ELECTE NOV 21 1980

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

The report is published in three volumes. Volume I is an Executive Summary; Volume II is the Evaluation Report.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

| | | |
|---|---|---|
| Aviation Training | Army Flight Training | Performance Measurement |
| Training Evaluation | Field Flight Performance | Training Validation |
| Program Evaluation | Training Management | |
| IERW Training | Aviation Combat Skills | |
| UPT Training | | |

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents results of an evaluation of the Army's 175/40 Initial Entry Rotary Wing (IERW) training program. The program consists of 175 flight and 40 simulator hours. In the last training phase of the program, students are divided into two training tracks, i.e., Utility Helicopter and Aeroscout. Data were gathered from IERW training files and through questionnaires administered to instructors at the Army Aviation Center and to unit instructors, supervisors, and program graduates at aviation field units world-

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Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

393148

20. wide. Data were gathered on graduates of both the 175/40 program and the 180/20 program that preceded it, and comparisons between the two programs are made. Results and conclusions are presented with reference to nine specific evaluation objectives. Major conclusions are: (1) the 175/40 IERW course is accomplishing its objectives; (2) the 175/40 course is an improvement over the 180/20 course; and (3) proficiency progression and individualized training can play an effective role in IERW training.

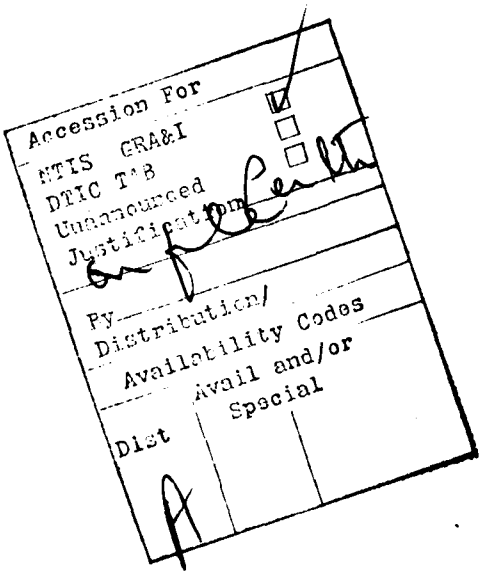
## PREFACE

This report presents results of an evaluation of the U.S. Army's 175/40 Dual-Track Initial Entry Rotary Wing (IERW) course of instruction. The 175/40 course embodies major changes from the IERW course that preceded it, changes that warranted systematic examination of their effects on the capabilities of IERW graduates to perform effectively in Army aviation field units.

The evaluation took place during the period January 1978-March 1979. Data were gathered both from field unit settings and the institutional setting at the U.S. Army Aviation Center, Fort Rucker, Alabama. The actual data collection period was May-October 1978.

The evaluation effort involved the cooperative efforts of military, civil service, and contractor personnel. The contracted portion of the evaluation was conducted by Seville Research Corporation under contract MDA903-78-C-2008 to the U.S. Army Research Institute for the Behavorial and Social Sciences. Mr. Charles A. Gainer was the Contracting Officer's Technical Representative. The members of the USAAVNC 175/40 Evaluation Team and other individuals who contributed significantly to the effort are listed in the Acknowledgements section that follows this Preface.

The evaluation report consists of two volumes, the Executive Summary and the Final Report.



## ACKNOWLEDGEMENTS

The 175/40 Initial Entry Rotary Wing Aviator Course (IERW Evaluation represents the combined efforts of many individuals and resources. These included U.S. Army aviators, staff and faculty of the United States Army Aviation Center, staff members of the United States Army Training and Doctrine Command and the Department of the Army, consultants, and others. The contributions of the personnel who assisted in the literary research, interviews, consultations, questionnaires, data reviews, and various analytical processes are gratefully acknowledged. The Evaluation Team would like to take this opportunity to give special recognition to the achievements of those who significantly aided the project effort.

Important contributions to the Evaluation Team's literature and document search were ably made by Mr. Charles A. Gainer, Chief, Army Research Institute Field Unit, Fort Rucker, Alabama, and his staff. Appreciation is extended to Mr. William Apple and the staff of the Management Information System Office, Fort, Rucker, for their support with the data processing effort.

Additional appreciation is extended to the Warrant Officers of the Warrant Officer Senior and Advanced Courses who assisted with the validation of the field questionnaires.

Special thanks are given to the following individuals and their staffs who so ably assisted with collection of the field data:

| | |
|---|---|
| CW3 Hurley | Fort Bragg, N.C. |
| CPT Costanza | Fort Campbell, Ky. |
| CW4 Nixon | Fort Hood, Tex. |
| MAJ Kisler | Fort Riley, Kan. |
| CW3 Kimmet | Fort Shafter, Hawaii |
| MAJ Oosterhuis | HQ, USAREUR |
| CPT Stanton | HQ, Eighth Army |

## 175/40 IERW EVALUATION TEAM PERSONNEL

Numerous individuals from many organizations participated in the 175/40 IERW evaluation. Some personnel were involved in all phases of the evaluation including development of the evaluation plan and questionnaires, conduct of field survey, analysis of data, and development

of the final report. The following list identifies the personnel who comprised the Evaluation Team:

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# I. INTRODUCTION

## BACKGROUND

This report presents an evaluation of two U.S. Army Initial Entry Rotary Wing (IERW) flight training programs in use during two different time periods at the U.S. Army Aviation Center (USAAVNC), Fort Rucker, Alabama. The two programs, described later in this report, are the currently offered IERW program (the "175/40 Program") and the program that immediately preceded it (the "180/20 Program"). The two programs derive their designations from the numbers of flight and simulator hours in each, e.g., 175 flight hours and 40 simulator hours. The two programs are examined in terms of their efficiency and effectiveness in meeting the needs of Army aviation units in the field.

The Army has a general commitment to the process of formally evaluating its training programs. Because of this commitment and the cost of IERW training, its criticality to Army operational capabilities, and the nature and magnitude of changes represented by the new 175/40 course, the U.S. Army Training and Doctrine Command (TRADOC) directed that USAAVNC evaluate the new 175/40 program.

In January 1978 the Command Group, USAAVNC, requested that the Director of Evaluation and Standardization (DES) develop and implement the evaluation plan with the support of the Director of Training Developments (DTD), the Director of Training (DT), the Director of Resource Management (DRM), and the Army Research Institute (ARI). Beginning in May 1978, the efforts of this Evaluation Team were aided by the Seville Research Corporation under contract to ARI.

## IERW TRAINING

The general objectives of IERW training are to qualify commissioned officers and warrant officers in rotary wing flying techniques and to provide them with the skills and knowledge required for helicopter operations in the tactical environment. As with most training courses, over time the IERW course has been modified in various ways to meet changes in tactical doctrine, equipment, field requirements, resource considerations, and other factors. Such changes are evaluated routinely, via training quality control mechanisms, in terms of their effects with reference to criteria internal to USAAVNC and the IERW course. Formal evaluation of the effects of changes with reference to field criteria is normally not done unless the program changes are major. The 175/40 program does represent a major change in this sense, and, therefore, the present evaluation was initiated.

The 175/40 IERW program was developed by USAAVNC in 1976-1977 as a result of a year-long aviator training study[1] conducted during the period 1975-1976. That study examined both USAAVNC training procedures and aviator field mission-task requirements and provided a sound basis for changes to the IERW program. The new 175/40 program developed by USAAVNC was the result. As such, it does embody significant changes in IERW content, time, and training methodology. The 175/40 program was instituted in June 1977 (Class 77-35/36), and since that time all IERW training has been conducted under the 175/40 program concept. The first 175/40 class completed IERW training on 9 March 1978. The last class to graduate under the 180/20 program completed IERW training on 18 January 1978 (Class 77-27/28). There were no IERW graduating classes during the period 19 January-8 March 1978.

## Program Descriptions

The 175/40 and 180/20 programs derive their descriptive designations from the numbers of aircraft and simulator[2] hours in each. The current 175/40 IERW program consists of 175 flight hours and 40 simulator hours, while its predecessor consisted of 180 flight hours and 20 simulator hours. However, the two programs differ in a number of significant ways other than just the numbers of flight and simulator hours. To give the reader a better understanding of the two programs being compared, the major characteristics of each are presented in the following sections.

Course Content and Length. Both the 180/20 and 175/40 courses were designed to meet the general IERW objectives previously described. Each included a Primary Phase given in the TH-55 aircraft, followed by a Transition[3] to the UH-1 aircraft and an Instrument Training Phase involving the UH-1 aircraft and the UH-1FS (simulator). Beyond this point there are major divergencies between the two programs. The 175/40 program next includes a Night Phase in which a variety of night skills (e.g., use of night vision goggles) are taught, skills that were no included in the 180/20 program. The Night Phase of the 175/40 is then followed by a final

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[1] U.S. Army Training and Doctrine Command. The United States Army Aviation Training Study. United States Army Aviation Center, Fort Rucker, Ala. July 1976.

[2] As used here, the reference is to time in the flight simulator for the UH-1H aircraft, i.e., the UH-1FS.

[3] The 180/20 course originally placed UH-1 Transition after the Instrument Phase. However, the last 14 classes to graduate under the 180/20 program had Transition precede Instruments. This change was referred to as the "realigned 180/20 course."

Combat Skills Phase in which the student aviator is taught to operate the helicopter in a combat environment with emphasis on tactical skills such as nap-of-the-earth (NOE) flight. In the 180/20 program this final phase was known as the Tactical Phase. While the 180/20 Tactical Phase content was similar to that of the 175/40 Combat Skills Phase, a greater variety of combat skills is covered in the 175/40 program, and there is greater emphasis on skills related to mid-intensity conflict, e.g., NOE flight.

Another major difference between the two programs during this final training phase is that the 175/40 students are split into two tracks; approximately three-quarters of them receive their Combat Skills training in the UH-1 aircraft, while the other quarter are transitioned to the OH-58 aircraft and receive Aeroscout combat skills training. As a result, the 175/40 program is referred to as a "dual-track" program. The older 180/20 program had only a single training track for all students, and all students went to field assignments qualified only in the UH-1 aircraft. In the 175/40 dual-track program, three-fourths go to the field qualified for UH-1 cockpit assignments, while the remainder are qualified for OH-58 Aeroscout assignments.

Thus, the major content differences between the two programs are the increased emphasis on combat skills, including night skills, and the inclusion of the dual-track feature in the 175/40 program. At a more detailed level, these differences are reflected in the specific tasks that are taught in training and the corresponding skills and knowledge of the trainees. The sequencing of training phases and the times devoted to each are shown for the two programs in Table 1.

Table 1

180/20 and 175/40 Program Comparison

| | 180/20 Program | | | 175/40 Program | | |
|---|---|---|---|---|---|---|
| Phase | Weeks | Acft. Hours | Sim. Hours | Weeks | Acft. Hours | Sim. Hours |
| Pre-flight | 3 | 0 | 0 | 2 | 0 | 0 |
| Primary | 12 | 85 | 0 | 8 | 50 | 0 |
| UH-1 Trans. | 5 | 25 | 0 | 4 | 25 | 0 |
| Basic Instr. | 4 | 0 | 20 | 1.4 | 0 | 10 |
| Adv. Instr. | 6 | 30 | 0 | 6.6 | 20 | 25 |
| Night | Not applicable | | | 4 | 20 | 0 |
| Tactical | 6 | 40 | 0 | - | - | - |
| Combat Skills | - | - | - | 8 | 60 | 5 |
| Totals | 36 | 180 | 20 | 34 | 175 | 40 |

As is shown in Table 1, the 180/20 program involved 180 aircraft and 20 simulator hours given over a 36 calendar week period. In contrast, the 175/40 program requires a nominal 175 aircraft and 40 simulator hours given over a 34 week period.

Course Management. The 180/20 program was managed on a syllabus-controlled, group-paced basis. Each trainee progressed through the program at the same pace with essentially the same numbers of hours devoted to each aspect of the syllabus and consequently a common total time. In contrast, the 175/40 program was designed to incorporate proficiency progression within phases and individualized pacing.[1] These features allow each learner to move through the program at a pace best suited to his speed of learning, with the consequence that fast learners might graduate with less than the nominal average 175/40 hours and slower learners with somewhat more. Instruction on individual tasks, maneuvers, and skill areas would continue only to the point of attaining a specified level of proficiency on each instead of for a fixed time regardless of proficiency. However, the individualized pacing feature is not currently in use with reference to between-phase progression in the 175/40 course, so students still move from phase to phase on a group-paced basis. Instruction on individual maneuvers within each phase, though, is managed on an individualized proficiency basis, so the students will show individual variability in training times and pacing by maneuver or flight task.

## PROGRAM EVALUATION

Evaluation of training programs is necessary to insure that the training system is adequately meeting the needs of the larger operational system. Two types of evaluation are of concern. One is internal to the program and is generally concerned with the manner in which the training system is accomplishing the specific training objectives identified in the program design. The second type of evaluation is made with reference to criteria external to the training system, i.e., how well the output products of the training system (graduates) perform their jobs in the field and the appropriateness of the training they received with reference to field job requirements. In essence, it is a summative evaluation of the validity of the training program design itself and the manner in which the training program functions are being carried out.

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[1] The term "self-pacing" is sometimes used in lieu of "individualized pacing." The usage of "individualized" is preferred here to insure that there is no connotation suggested that the trainee chooses his own pace and training content. The pace and content of training are individualized, but they are managed by the instructor pilot.

The USAAVNC routinely carries on certain internal evaluation activities as part of its training quality control program. Class performance summaries are prepared, and comments and critiques are provided by students, instructors, and supervisory personnel. As a result of such evaluation data, a variety of adjustments are made in scheduling, instructional procedures, resource management, course content, standardization, and similar matters dealing with the internal workings of the training program. The USAAVNC is regularly in touch with field units, and the periodic rotation of field personnel to USAAVNC duty provides contact with the field, but such activities are not sufficient for major program evaluation needs. The conduct of formal external field evaluations of training programs is a relatively complex undertaking, and therefore it is not done on a routine continuing basis.

## PROBLEM OVERVIEW

The principal problem for the evaluation was to determine how effectively the 175/40 dual-track IERW training program is meeting the needs of commissioned and warrant officer aviators in their initial field unit aviation assignments following their graduation. Further, the results were to be used to confirm the course objectives and/or to provide a basis for their revision or modification. Secondarily, the evaluation was a comparative evaluation between the newer 175/40 IERW program and the baseline provided by the predecessor 180/20 IERW program.

## EVALUATION OBJECTIVES

The primary emphasis in the evaluation was on graduate performance in the field. However, institutional performance while in IERW at USAAVNC was also of concern. Therefore, the evaluation had two thrusts: (1) the gathering of graduate field performance indices through task performance questionnaires administered to graduates in the field, their unit instructor pilots (IPs), and their supervisors; and (2) the analysis of a variety of IERW training data and indices extracted from training records and documents at USAAVNC and information provided by USAAVNC subject matter expert (SME) personnel.

The general goals of the 175/40 IERW evaluation have been described previously. The evaluation plan developed by the USAAVNC Evaluation Team involved nine specific objectives. These are listed in Table 2. It should be noted that Objective IX in Table 2 was the responsibility of the USAAVNC DRM. However, the aviator performance data reported here form a necessary backdrop for such an analysis. Also, Objective VIII is not an evaluation objective per se, but is a post-evaluation product derived from a synthesis of the various evaluation results.

Table 2

Specific Evaluation Objectives

I. Evaluate differences in the performance of critical tasks between 180/20 and 175/40 IERW graduates at selected field locations.

II. Evaluate the IERW training performance and graduate field performance of Aeroscout and Utility track aviators.

III. Evaluate differences in the checkride performance of 180/20 and 175/40 students on comparable maneuvers within stages of IERW training.

IV. Determine if 175/40 graduates are capable of performing at the ARTEP III/ARL II level within three to six months after assignment to operational units

V. Determine if graduates of the 175/40 Aeroscout and Utility tracks are being properly assigned to and utilized in the field.

VI. Determine if a 175/40 POI with a proficiency based checkride policy is adequate for successful completion of the IERW training objectives.

VII. Identify elements within the current 175/40 program which are and are not compatible with the concept of a self-paced IERW program, and why.

VIII. Develop a model for monitoring and evaluating progress and changes in the IERW program in the future.

IX. Provide student performance data and resource data required for a cost effectiveness analysis of the 175/40 IERW program.

The schema for the objectives shown in Table 2 provides the organization for the detailed presentations of the evaluation methodology, activities, findings and conclusions that follow in the remaining sections of this report. However, as a means of providing an overview concept for this evaluation, the contract Statement of Work identified three more general technical objectives for the effort. These general objectives were as follows:

- Assessment of the extent to which the program achieves IERW training objectives.
- Evaluation of the effectiveness of changes in the 175/40 program as compared with the 180/20 program in terms of training grades and operational performance of graduates.
- Development of normative performance data for each maneuver within each program phase as a function of time to provide data for the evaluation and further implementation of the proficiency based approach to IERW training.

These general objectives will be treated also in the findings and conclusions section to provide integration and elaboration of the specific objectives as appropriate.

In addition to these general and specific Objectives, a number of specific questions were posed for the evaluation in the form of some 19 Essential Elements of Analysis (EEA). These EEA were prepared by the Evaluation Team and were part of the evaluation plan. However, the EEA questions were not presented directly to survey respondents. Rather, their substantive intent was incorporated into the general philosophy of the various questionnaires that were generated. The EEA are presented in Appendix O and are cross-referenced in terms of their relationships to various survey questionnaire items and data presentations.

## CONSTRAINTS

The evaluation of the 175/40 program was necessarily restricted by certain constraints. Within the institutional setting, USAAVNC desired that the evaluation not disturb existing IERW policies and practices. This necessarily constrained the assessment procedures that could be used in the school setting and the manner in which proficiency progression checkrides could be implemented.

The field portion of the evaluation was subject to several important, but unavoidable, constraints. First, while it was desired by the Evaluation Team that specially trained check pilots be used to gather actual

in-flight mission performance data from graduates in the field, such an approach could not be used because of fiscal, manpower, and time constraints. Consequently, a task performance survey questionnaire approach was utilized.

A second factor was that the numbers of 180/20 and 175/40 program graduates in the field who would fit the three to six months "experience window" stated in Objective IV was necessarily limited. One of the goals of the evaluation was to evaluate the performance of graduates after they had been in the field for three to six months. However, the number of 180/20 graduates who had six months or less in the field was declining rapidly during the data collection phase. In order to insure a sufficient number of respondents from the 180/20 program, graduates with up to eight months in the field were included.

Conversely, for the 175/40 graduates, the number of individuals who had three months or more in the field was the limiting factor. Therefore, the experience window for the 175/40 graduates was extended downward to include individuals with at least one and one-half months in the field.

These necessary extensions of the experience window resulted in the 180/20 graduate sample having accumulated somewhat more field flying experience than the 175/40 graduate sample. This fact is treated appropriately in the results that follow.

The other major constraint on the field evaluation stemmed from the inevitable difficulties in locating and accessing specific personnel in the field. While this likely reduced the numbers of respondents somewhat, the numbers are sufficient to provide reasonable data on the two programs.

## II. METHOD

### OVERVIEW

A four-phase evaluation effort was conducted to address the objectives discussed in the previous section. The four phases and their time schedules were as follows:

- PHASE I - Planning/Preparation----------(2/1/78-5/15/78)
- PHASE II - Execution/Data Collection------(5/19/78-10/16/78)
- PHASE III - Data Management/Analysis-------(7/10/78-2/28/79)
- PHASE IV - Interpretation/Reporting-------(9/25/78-5/18/79)

Each of these phases is discussed generally in the following paragraphs. A chronology of significant events in the evaluation is given in Appendix A.

### PHASE I

The evaluation plan developed during Phase I called for the collection of field performance data for samples of graduates of the two programs, and the collection of institutional data on IERW training at USAAVNC, Ft. Rucker.

#### Field Assessment

The plan called for the assessment of field job task performance of samples of both 180/20 and 175/40 program graduates through the use of detailed mission task performance questionnaires. The questionnaires were to be administered at field locations distributed worldwide. Sites were to be selected generally to represent the types of graduate first-assignments units, but primarily to maximize the number of respondents from the target graduating classes fitting the experience windows previously described. Administration of the questionnaires was to be carried out through site visits by members of the Evaluation Team or by mail.

Three basic questionnaire forms were to be developed for the field assessment. One was for the recent graduate of either the 180/20 or 175/40 IERW program. The second form was for administration to the unit IPs for the specific target graduate aviators, while the third was intended for supervisory personnel in the units sampled.

## IERW Assessment

The plan also called for the collection of certain data at USAAVNC in order to assess the institutional performance of trainees during the two IERW programs of concern and for the examination of certain internal characteristics of the 175/40 program having to do with the individualized training concept. Two general types of data were of primary concern: (a) those reflecting time to proficiency, and (b) those reflecting checkride performance. In addition, supporting questionnaire and interview data were to be collected from USAAVNC academic, flight, and supervisory personnel related to the training program.

It should be noted that during Phase I, only the general specifications for the field and USAAVNC questionnaires were developed. The questionnaires themselves were not developed until Phase II.

# PHASE II

Initial activity in Phase II was devoted to the development of the field assessment questionnaires. Questionnaire forms for the graduates and the unit instructor pilots were pretested on groups of 12 and 16 individuals, respectively, whose background and experience were similar to those anticipated in the target groups. Revisions were made based on the pretest information, and final forms were prepared for field administration.

Following completion of preparation of the field questionnaires, the field data collection was instituted. Concurrently with the questionnaire development and survey implementation, the data collection procedures for USAAVNC IERW data were completed and put into operation. These latter activities included the subsequent development of institutional questionnaires for the USAAVNC instructor and supervisory personnel. Data collection continued in accord with the general plan and was completed by mid-October 1978.

## Field Questionnaire Development

The field assessment questionnaires consisted of three general sections. Section I requested certain biographical and demographic data concerning the individual's unit and assignment. Section II, the principal part of the questionnaire, requested information relative to training for and performance of specific aviator tasks or task areas. Section III requested additional information related to training and performance.

Primary emphasis in field questionnaire development was placed on Section II of the graduate and unit instructor pilot forms which contained a listing of critical aviator tasks exemplifying the training objectives toward which the IERW program was directed. The IERW aviator task list

used in the questionnaires was based on a listing originally developed by the 1976 Aviation Study Group. That listing was reviewed and revised by appropriate USAAVNC agencies[1] for relevance and inclusiveness, and a set of critical aviator tasks was identified for use in the evaluation. Sections I and III of the graduate and IP forms, as well as all of the supervisor form, were intended primarily to support and expand the Section II task items.

The aviator task list provided a basis for assessing the flight performance of the program graduate as viewed both by the graduate himself and by the unit instructor pilot. The graduate was asked to respond to each of some 140 specific aviator tasks in terms of the adequacy of his IERW training, his current performance level, and the number of times he had performed the task in mission and individual training. The task list contained night tasks as well as sections dealing with Utility and Aeroscout tasks. For the instructor pilot, assessment was in terms of the IP's rating of the graduate's initial performance level upon arrival at the unit, his current performance level, and the type of unit training the graduate was currently receiving on the task. The IP was requested to rate one or more specific graduates (identified by name in advance) from the target groups. The task list provided the unit instructor pilot was a reduced version (95 tasks) of that given the graduates. The list given the instructor pilot was reduced so that he could assess the performance of up to three different target graduates within a four-hour (1/2 day) time block.

For the supervisor, the format of the task list was changed to reflect more generalized tasks or areas (30 areas) of flight performance phrased in a mission context. Direct comparison was made by the supervisor between the 180/20 and the 175/40 program graduate groups in terms of each of the 30 mission task areas. Whereas the IP had responded by rating individual graduates, the supervisor responded only in terms of rating IERW program groups. Response by the supervisor to the items was in terms of ratings of each group's initial performance level upon arrival in the unit, and ratings of their current performance levels.

For further discussion of the field questionnaires and the basic listings of the aviator tasks, the reader is referred to Appendix C. Data from these questionnaires are discussed elsewhere in this report.

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[1] The task list was derived from an approved task list provided by the Directorate of Training Developments. Flight-related tasks were extracted, and the revised task list was reviewed by the Directorate of Training, Directorate of Training Developments, and the Directorate of Evaluation and Standardization.

## Institutional Questionnaire Development

The institutional questionnaires (i.e., those questionnaires administered to USAAVNC personnel) were primarily concerned with the current 175/40 program in terms of its adequacy for students to attain required proficiency levels. Two general questionnaire forms were developed, each consisting of two sections.

One form was for administration to USAAVNC instructor pilots, standardization instructor pilots (SIPs), and flight commander supervisory personnel. Section I of this form requested the respondent's rating of the adequacy of the 175/40 program in terms of time available or allowed to instruct each of 145 specific tasks or maneuvers to proficiency. The 145 tasks were taken from the USAAVNC Flight Training Guides. Of the 145 tasks, 138 were common to the listing of critical aviator tasks used for the graduate field questionnaire. Section II of the questionnaire requested narrative responses concerning areas in which increased or reduced instructional emphasis is needed, as well as response to a number of specific questions of interest to the Evaluation Team.

The second form was for administration to academic instructor personnel at USAAVNC. It was similar to that described for flight instructional personnel, but Section I dealt with some 148 academic topic areas identified in the 175/40 program of instruction (POI). Response was in terms of adequacy of the 175/40 program time to achieve proficiency in these academic areas. Section II, the narrative response section, was analogous to that previously described for flight personnel.

The institutional questionnaires are discussed further in Appendices J and K.

## Implementation and Data Collection

As the questionnaires and data collection plans were developed, appropriate aspects of the field and institutional data collection activities were initiated and carried through. The following sections describe the field and institutional data collection activities.

Field Data Collection. The questionnaire packet (three questionnaires) was administered at the 16 field locations, either by field site visits by the Evaluation Team members or by mail-out. The 16 field locations, including indication of those sites which were visited by the Evaluation Team, are shown in Appendix B. Included in the 16 field locations were two major field commands, Korea and Germany. Sites were selected based upon the numbers of graduates from the target classes going to each location as reflected in graduate assignment orders on file at USAAVNC.

The numbers and locations of graduates, instructor pilots, and supervisors who were included in the field survey are shown at Appendix B. Of the graduate respondent total (N=258), 100 were from the 180/20 program, and 158 were 175/40 program graduates. Of the latter, 100 were from the Utility track and 58 from the Aeroscout track. The total number of instructor pilots (N=213) who had the necessary familiarity with the field performance of individual target graduates included 77 IPs for the 180/20 program graduates, 102 IPs for the 175/40 Utility track graduates, and 34 IPs for the 175/40 Aeroscout track graduates. Supervisors (N=193) who were administered a questionnaire included 123 platoon leaders, 32 company operations officers, 33 company commanders, and five battalion operations officers and commanders.

As previously noted in the discussion of constraints, it was originally intended that the questionnaire was to be administered to graduates of IERW training within three to six months after their assignment to operational units. However, after the first site visit, it was apparent that the number of sites surveyed would have to be increased or the selection window widened if a sufficient number of subjects were to be obtained. Since time and resources did not permit the former, the window was enlarged to cover three to eight months for the 180/20 group and to cover one-and-one-half to six months for the 175/40 group.

The selection of unit graduate, instructor pilot, and supervisor respondents was based upon prior coordination between the Evaluation Team and a designated point of contact (POC) at the unit surveyed. Target program graduates were identified from USAAVNC files, and, after confirmation of their presence at one of the selected locations, their names were conveyed to the POC who assembled the appropriate graduates, unit instructor pilots, and supervisors for questionnaire administration.

Institutional Data Collection. IERW data collected at USAAVNC were of six general types: (1) daily and checkride grades extracted from training records; (2) data related to the special time-based, end-of-stage flight grades instituted by the Evaluation Team for this effort; (3) time-to-proficiency data; (4) the institutional questionnaire data; (5) training attrition data; and (6) resource utilization data. Data collection for all data types was fairly routine and went according to plan with the exception of the special time-based, end-of-stage flight grades. Collection of these data was terminated because of USAAVNC administrative considerations.

In terms of the first data type (student training records), checkride grade data were extracted for a sample of six classes of students who graduated from the 180/20 program and a sample of six classes of students from the 175/40 program at comparable stages of training.

The time-to-proficiency data were extracted from the daily grade records of six separate 175/40 classes for each phase of training. In

grading each daily performance of specific maneuvers, the IP graded it as a plus (+) on the grade slip if the student performed in accord with the standards set forth for that maneuver in the USAAVNC Flight Training Guide. When performance on any given day did not reach that standard, a minus (-) was assigned. The point of principal concern was the training day on which the student achieved proficiency on each maneuver. Achievement of maneuver proficiency was defined as that training day on which the third successive (+) grade on the maneuver was given the student. That is, the student was required to perform a maneuver in accord with established USAAVNC standards on three successive occasions before he was judged to be proficient on that maneuver.

With reference to the institutional questionnaires, some 40 academic instructors and 295 flight instructional personnel (i.e., IPs, SIPs, and flight commanders) were surveyed. In addition, a number of the academic and flight personnel were interviewed to provide further background concerning the questionnaire responses.

Attrition data were extracted from the training files covering both the 180/20 and 175/40 programs. Two sets of samples were drawn for each program. The first set consisted of 20 seasonally comparable classes from each program, while the second set involved 14 classes from each program.

The resource utilization data were gathered by the Directorate of Resource Management, USAAVNC, from Ft. Rucker sources. A discussion of the DRM methodology and data is in Appendix N.

In addition to these six institutional data types, a variety of other information concerning IERW training was examined. This included POIs, training media, and miscellaneous items.

## PHASE III

Sections I and II of the field questionnaires and Section I of the institutional questionnaires were analyzed by computer. Computer data tabulations were prepared, and various descriptive statistics were computed from these data. Between-group comparisons were made for selected items, and some correlational analyses were performed. Narrative response data from Section III of the field questionnaires and Section II of the institutional questionnaires were reduced manually. The time-to-proficiency data were analyzed with computer support, while other institutional data were generally analyzed manually and summarized through various standard descriptive statistics.

PHASE IV

The interpretation of data and the preparation of this report were based on the evaluation objectives previously discussed. Since a diversity of data were used, interpretation involved a considerable amount of analysis and synthesis of information from various sources. Underlying this phase, however, was a basic concern with the extent which the new 175/40 IERW program is accomplishing its goals.

# III. FINDINGS AND CONCLUSIONS

## INTRODUCTION

A substantial amount of survey and training data was gathered for the present evaluation, and a large amount of training documentation was examined. Findings and results will be presented generally in terms of the nine specific objectives that were developed by the Evaluation Team and discussed in Section I of this report. These objectives targeted the evaluation interests of TRADOC and USAAVNC, and the presentation of findings and conclusions will be generally restricted to those objectives. After discussion of the nine objectives, the three broad general objectives will be addressed briefly. The appendices to this report contain a large trove of detailed data resulting from this effort such as the tabulations of field survey responses on a task-by-task basis for the two program groups. This information will allow the reader with specific areas of interest to explore the detailed results as desired.

In the sections that follow, the various objectives will be treated. In each section the first segment will present various results and findings pertinent to that objective. The next segment of each section presents conclusions concerning that objective based on the findings presented.

## OBJECTIVE I

The concern of this objective was evaluation of differences between 180/20 and 175/40 IERW graduates in their performance of critical tasks in the field. Data for this evaluation were derived from the field questionnaires administered to unit IPs, supervisors, and graduates of the two programs.

### Findings

The primary data used are the instructor pilot evaluations of graduate field performance on each of the specific tasks contained in Section II of the IP field questionnaire. The unit IP is the person best able to provide a detailed valid assessment of an individual graduate's performance with reference to unit needs and requirements, because the IP has the greatest familiarity with the graduate's performance capabilities at the specific task level. Task performance evaluations provided by the graduate himself are also of interest, but the graduate necessarily lacks the breadth of experience and knowledge of unit requirements the IP has. Similarly, while unit supervisory personnel have the required breadth of experience and knowledge of the unit, they do not have the IP's detailed

acquaintance with the specific capabilities of each graduate on an individual basis. Consequently, for this objective, IP assessments are considered primary, and graduate and supervisor assessments are secondary.

The task-level IP evaluations of initial performance of graduates, i.e., graduate performance capability upon reporting to the unit, provide the most immediate criterion of the effectiveness with which IERW training accomplishes its objectives. Should those performances be inadequate, the unit would have to devote inordinate amounts of time to individual skills training that was expected to be accomplished in IERW. However, the IP evaluations of current[1] performance levels also give an indication of IERW effectiveness. If IERW has provided a graduate with whom the unit can work effectively, one would expect the graduate's current performance to show improvement over that he initially exhibited in the unit.

In the basic text presentations of results that follow, task data are typically presented in summary form for major groupings of tasks. Presentations of individual task data[2] and other raw data are reserved for the appendices. The responses of graduates and unit instructor pilots to the specific task portion of the questionnaires are tabulated in Appendices D-H. Tabulations for the 175/40 and 180/20 program groups are presented separately in those appendices. Field supervisor data are presented in the text.

Initial Performance. IP responses for the initial performance capabilities of both 180/20 and 175/40 program graduates are summarized by task area groupings in Table 3. The tasks are organized into six groupings: (1) Basic Tasks; (2) Instrument Tasks; (3) Tactical Tasks; (4) Night Tasks; (5) Utility Track Tasks; and (6) Aeroscout Track Tasks. Only 80 of the 95 tasks rated by the IPs are included in this table. The other 15 tasks on the IP form were Night Vision Goggle (NVG) tasks and are omitted here because IPs reported knowledge of the NVG capabilities of so few graduates that the percentages would be virtually meaningless. The NVG IP rating data, however, are included for reader perusal in Appendix D along with the other 80 tasks. As can be seen from the data

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[1] The term "current" refers to the time at which the respondents were surveyed. From the experience windows sampled, it follows that the time between initial and current performances corresponds approximately to the 1½-6 and 3-8 months experience windows for the 175/40 and 180/20 groups, respectively. Of course, the initial and current ratings of performance were gathered at the same point in time, i.e., the time of survey.

[2] The reader is cautioned over making data interpretations at the individual task level. It must be kept in mind that when large numbers of individual task comparisons are made between groups, chance alone would account for some apparently significant differences.

in Table 3, the 175/40 program has slightly higher percentages of graduates in the "competent" category for all task groupings and slightly lower percentages in the "less than competent" category for all task groupings except "Basic" (where the groups are equal) and "Aeroscout."[1] The significance of differences between the 175/40 and 180/20 program groups will be treated in later discussion of these data (see Table 7). However, it can be seen that the IPs rate the initial performances of the graduates of both programs reporting to their units as "adequately prepared" or "competent" for about three-quarters or more of the tasks.

Table 3

Unit IP Ratings of Graduate Initial Performance
by Task Area
(A = 180/20; B = 175/40)

| | Aviator Task Area | No. of Tasks | Progr. Group | Total Responses | IP Ratings by Graduate Group (Percentages of Graduates) <Adequate | Adequate | Competent |
|---|---|---|---|---|---|---|---|
| I. | Basic | 10 | A | 681 | 20 | 48 | 32 |
| | | | B | 1194 | 20 | 44 | 36 |
| II. | Instrument | 5 | A | 289 | 19 | 50 | 31 |
| | | | B | 413 | 13 | 40 | 47 |
| III. | Tactics | 20 | A | 1040 | 25 | 48 | 27 |
| | | | B | 1519 | 20 | 47 | 33 |
| IV. | Night | 19 | A | 764 | 27 | 47 | 26 |
| | | | B | 1153 | 23 | 42 | 35 |
| V. | Utility | 10 | A | 327 | 27 | 53 | 20 |
| | | | B | 562 | 23 | 56 | 21 |
| VI. | Aeroscout | 16 | A | 98 | 26 | 61 | 13 |
| | | | B | 284 | 36 | 31 | 33 |

[1] It should be noted that the 180/20 Aeroscout graduate group are individuals who received OH-58 transition in the field. Thus, they would have begun their unit Aeroscout assignments with somewhat more total flight experience than would the 175/40 Aeroscout track graduates.

The initial performance adequacy of the 175/40 and 180/20 program graduates was also assessed by the responses of supervisors to a list of 30 mission-oriented aviator tasks.[1] For each of the 30 tasks, the supervisor responded to the question, "How adequate was the training the program graduates received in this task area at Fort Rucker in preparing them to perform these tasks in your unit?" Supervisor responses in the three categories, "substantially overtrained," "slightly overtrained," and "adequately trained," were combined to yield a single index of training adequacy. The numbers and percentages[2] of supervisor responses in these combined categories are given in Table 4 for the various mission tasks areas.

As shown in Table 4, the responses by the supervisors indicate that they perceive the 175/40 program graduate to be adequately or better trained for most of these unit mission tasks. In 27 of the 30 mission areas (i.e. all but areas 1, 23, and 24), more than 50% of the supervisors judged the 175/40 group to be adequately or better trained. In contrast, for the 180/20 graduate group, only 13 of the 30 task areas were judged as adequately or better trained by a majority of the supervisor group. Comparison of the adequacy rating percentages between the two programs shows that the supervisors rated the 175/40 group higher than the 180/20 group on 29 of the 30 task areas. A paired sample $t$ test was computed to test the difference between mean adequacy ratings. It indicates that the supervisors viewed the 175/40 program graduate as significantly more adequately trained than his counterpart ($t = 8.42$; $df = 29$; $p < .01$).[3]

Current Performance. It would be expected that the performance levels of graduates after being in their units from three to six months (or, utilizing the expanded experience window, one and one-half to eight

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[1] The supervisor rating of adequacy of IERW training is utilized as a product evaluation, because the evaluation is primarily based directly on what the supervisor sees of graduate (product) performance. Thus, the evaluation of IERW training is indirect and is mediated through graduate performance. As will be seen in a subsequent discussion, the graduate's evaluation of his IERW training is viewed as a process evaluation, because his view of IERW is direct and not mediated by some intervening mechanism.

[2] The number of respondents varied over the 30 task areas.

[3] Because of the nature of the data and the multiplicity of the task variables, a conservative criterion was adopted ($p < .01$) for acceptance of a difference as statistically significant. This alpha level will be used throughout this report for significance tests.

Table 4

Field Supervisor Ratings of Adequacy of Graduate Training by Program
(Adequate, Slightly & Substantially Overtrained)

| Task Area | Supervisor Responses Frequency and Percentage 180/20 f | % | 175/40 f | % |
|---|---|---|---|---|
| 1. Conduct Coordination with Combat Troops | 32 | 36 | 32 | 45 |
| 2. Conduct the Movement | 44 | 49 | 37 | 55 |
| 3. Transport External Load | 41 | 53 | 31 | 52 |
| 4. Transport Internal Load | 59 | 63 | 44 | 66 |
| 5. Submit Reports | 38 | 44 | 36 | 58 |
| 6. Plan Day Mission | 72 | 68 | 63 | 80 |
| 7. Plan Night Mission | 51 | 50 | 45 | 61 |
| 8. Perform Low Level Flight (Day) | 82 | 75 | 64 | 81 |
| 9. Perform Low Level Flight (Night) | 42 | 44 | 37 | 54 |
| 10. Perform Contour Flight (Day) | 76 | 71 | 59 | 75 |
| 11. Perform Contour Flight (Night) | 40 | 45 | 37 | 55 |
| 12. Perform NOE Flight (Day) | 70 | 71 | 56 | 79 |
| 13. Perform NOE Flight (Night) | 29 | 40 | 25 | 52 |
| 14. Prepare for Mission and Takeoff | 53 | 59 | 44 | 71 |
| 15. Enroute Flight/Approach and Landing | 57 | 66 | 45 | 67 |
| 16. Demonstrate Movement Techniques | 30 | 50 | 29 | 67 |
| 17. Select/Provide Vectors to Holding Area | 19 | 36 | 26 | 64 |
| 18. Select Attack Positions | 19 | 38 | 24 | 62 |
| 19. Acquire and Identify Targets | 18 | 35 | 22 | 57 |
| 20. Target Handoff/Security | 16 | 34 | 19 | 53 |
| 21. Engage Targets | 19 | 32 | 21 | 56 |
| 22. Use Indirect Fire, Artillery, Mortar, Illumination | 12 | 25 | 21 | 56 |
| 23. Employ Tactical Air | 7 | 16 | 12 | 37 |
| 24. Provide Target Effectiveness Data | 14 | 28 | 17 | 46 |
| 25. Reports | 24 | 43 | 21 | 53 |
| 26. Perform Zone Reconnaissance | 37 | 59 | 33 | 71 |
| 27. Detect Enemy Camouflage and Concealment | 26 | 43 | 24 | 53 |
| 28. Select/Recommend Landing Zone | 47 | 63 | 39 | 67 |
| 29. Select Assembly Area | 35 | 58 | 29 | 61 |
| 30. Perform Screening Mission | 22 | 45 | 23 | 57 |

months) would improve over the initial level shown as they reported to the unit. Table 5 shows unit IP ratings of current performance level by task groupings. Full tabulations of IP ratings of graduate current performance by task are in Appendix E. Comparison of Table 5 with Table 3 shows that the percentages in the competent category have increased by a factor of two to three, and less than adequate ratings are negligible for all task groups with the exception of the 175/40 Aeroscout group. Possible reasons for this latter result are discussed later.

Table 5

Unit IP Ratings of Graduate Current Performance
by Task Area
(A = 180/20; B = 175/40)

| Aviator Task Area | No. of Tasks | Progr. Group | Total Responses | IP Ratings by Graduate Group (Percentages of Graduates) <Adequate | Adequate | Competent |
|---|---|---|---|---|---|---|
| I. Basic | 10 | A | 678 | 4 | 28 | 68 |
| | | B | 1180 | 4 | 30 | 66 |
| II. Instrument | 5 | A | 285 | 3 | 35 | 62 |
| | | B | 389 | 5 | 26 | 69 |
| III. Tactics | 20 | A | 1041 | 7 | 34 | 59 |
| | | B | 1461 | 10 | 28 | 62 |
| IV. Night | 19 | A | 757 | 8 | 33 | 59 |
| | | B | 1085 | 11 | 23 | 66 |
| V. Utility | 10 | A | 324 | 10 | 38 | 52 |
| | | B | 537 | 8 | 24 | 68 |
| VI. Aeroscout | 16 | A | 111 | 7 | 31 | 62 |
| | | B | 262 | 29 | 19 | 52 |

Graduate ratings of current performance are summarized in Table 6. Tabulations are shown in Appendix F. The six groupings for the graduates cover the full 140 aviator tasks, including the NVG tasks. Examination of the graduate NVG data shows that while about two-thirds of the 175/40 graduates felt their NVG task performance level to be adequate or competent, virtually none of the 180/20 graduate group felt their NVG skills to be adequate or competent. This difference would be expected, since the 180/20 graduates had no training and virtually no experience with night vision goggles, and NVG orientation training was one of the additions made in the 175/40 program.

Table 6

IERW Graduate Ratirgs of Current Performance
b› Task Area
(A = 150/20; B = 175/40)

| Aviator Task Area | No. of Tasks | Progr. Group | Total Responses | IP Ratings by Graduate Group (Percentages of Graduates) <Adequate | Adequate | Competent |
|---|---|---|---|---|---|---|
| I. Basic | 33 | A | 3113 | 6 | 29 | 65 |
| | | B | 4984 | 7 | 31 | 62 |
| II. Instrument | 13 | A | 1197 | 11 | 37 | 52 |
| | | B | 1954 | 10 | 42 | 48 |
| III. Tactics | ·34 | A | 3184 | 29 | 35 | 36 |
| | | B | 5114 | 28 | 36 | 36 |
| IV. A. Night | 19 | A | 1679 | 40 | 30 | 30 |
| | | B | 2821 | 12 | 39 | 49 |
| B. NVG | 15 | A | 1258 | 95 | 3 | 2 |
| | | B | 2188 | 38 | 36 | 25 |
| V. Utility | 10 | A | 587 | 16 | 36 | 48 |
| | | B | 936 | 21 | 43 | 36 |
| VI. Aeroscout | 16 | A | 330 | 44 | 37 | 19 |
| | | B | 849 | 29 | 30 | 41 |

Comparison of the IP and graduate ratings of current performance shown in Tables 5 and 6 reveals some areas of similarity and some of difference. The pattern and general distribution of ratings are very similar for IPs and graduates for the Basic and Instrument task areas. However, IPs tend to be more favorable in their ratings of the graduates in both programs in the Tactics, Night, Utility, and Aeroscout areas than are the graduates themselves. It is of interest also to note the relatively high percentages of 180/20 IERW graduates who view their current performance capability as less than adequate in the Night (40%) and Aeroscout (44%) task group areas. These are areas in which the 175/40 and 180/20 programs show substantial content differences.

Overview of Field Performance. The ratings of task performance were examined further in terms of the percentages of ratings assigned only in the competent category for each task. From these "scores" a mean task

percentage competency figure was computed in each task area. Differences in this "competency index" between the two program groups were then tested for significance utilizing a paired sample t test. Results are shown in Table 7.[1]

Table 7

Mean Competency Index Ratings for 180/20 and 175/40 Graduates

| | | 180/20 | 175/40 | Difference Significance[a] |
|---|---|---|---|---|
| INITIAL PERFORMANCE AS RATED BY IP: | | | | |
| TASK AREA | Basic | 32 | 36 | NS |
| | Instrument | 31 | 47 | * |
| | Tactics | 24 | 31 | NS |
| | Night | 26 | 34 | * |
| | Utility | 19 | 19 | NS |
| | Aeroscout | 12 | 32 | * |
| CURRENT PERFORMANCE AS RATED BY IP: | | | | |
| TASK AREA | Basic | 68 | 66 | NS |
| | Instrument | 61 | 67 | * |
| | Tactics | 54 | 56 | NS |
| | Night | 58 | 65 | * |
| | Utility | 50 | 67 | * |
| | Aeroscout | 63 | 49 | * |
| CURRENT PERFORMANCE AS RATED BY GRADUATE: | | | | |
| TASK AREA | Basic | 65 | 62 | NS |
| | Instruments | 52 | 47 | * |
| | Tactics | 35 | 36 | NS |
| | Night | 29 | 49 | * |
| | Utility | 48 | 35 | * |
| | Aeroscout | 19 | 41 | * |

[a] Differences between the two groups significant at the .01 level are indicated with an asterisk (*). NS indicates the difference is not statistically significant at the .01 level.

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[1] The mean values shown in Table 7 will differ slightly in some cases from the percentages shown in the "Competent" column of Tables 3, 5, and 6. This discrepancy results from the fact that the number of persons responding varied from task to task.

As can be seen, the unit IPs rated the initial performance of 175/40 program graduates as significantly more competent than that of the 180/20 graduates in Instrument, Night (without NVG), and Aeroscout task areas, while differences in the other three task groupings were not statistically significant. With reference to IP ratings of current performance, the 175/40 program graduate was still viewed as significantly more competent in the Instrument and Night (without NVG) areas, and, in addition, in the Utility task area. However, the 180/20 group was now seen as significantly better than the 175/40 group in the Aeroscout area.

This reversal in relative IP evaluation of the groups for the Aeroscout task area from initial to current rating has previously been noted. This shift may be attributable, in part, to the differences in flight time since graduation between the two Aeroscout groups. The 180/20 transitioned Aeroscout aviator had accumulated considerably more flight time since graduation than had the 175/40 Aeroscout track aviator. For example, in the 180/20 Aeroscout group, 11 of the 21 respondents (52%) reported more than 100 flying hours since IERW graduation, while only seven of 57 (13%) of the 175/40 Aeroscout aviators reported that much flight time. This difference would be expected from the experience window differential. However, a similar flight time diferential also existed for the Utility graduates for the two groups, and the 175/40 graduates were rated as significantly better on current performance of Utility tasks.

Conclusions

The 175/40 graduate is better trained overall to perform critical aviator tasks upon his arrival at the unit than is the 180/20 graduate, particularly in the Instrument, Night, and Aeroscout areas. The two programs appear to be essentially equivalent with reference to the Basic and Tactics task areas. In terms of the graduates' later performance in the unit, i.e., 1½ to 8 months after assignment, the 175/40 program graduate maintains his performance advantage over the 180/20 graduate in the Instrument and Night task areas, and also is judged as better in the Utility task area by the IP. Indications concerning later performance in the Aeroscout task area are mixed. Based on the overall data, it is concluded that the 175/40 program is producing a graduate who is better able to perform critical tasks in the field unit setting than is the graduate of the 180/20 program.

OBJECTIVE II

The concern of this objective was the IERW training performance and graduate field performance of Utility and Aeroscout track aviators. Training performance data sources include IERW grades, graduate ratings of IERW training adequacy, IERW attrition indices, and narrative comments

of Fort Rucker instructional personnel. Unit IP ratings of graduate performance provided data for evaluating field performance.

Findings

Findings will be discussed separately for IERW training and field performance. Where appropriate, data already cited will be referenced and utilized in terms of their relation to this objective.

IERW Training. The ratings of adequacy of their IERW training provided by the graduate groups in the field provide a way of examining the IERW training performance of aviators from both tracks and programs. On the field questionnaire graduates were asked for each of the 140 tasks to respond to the question: "How adequate was the training you received in this task at Fort Rucker in preparing you to perform this task in your present unit?" Respondents replied in terms of five scale categories: (1) substantially undertrained; (2) slightly undertrained; (3) adequately trained; (4) slightly overtrained; and (5) substantially overtrained. Appendix G presents adequacy ratings by task for the program groups.

Summary adequacy ratings for the groups over the six task area groupings employed in earlier discussions are shown in Table 8. The 175/40 Utility and Aeroscout tracks are listed separately. The table entries are percentages of responses in the combined categories, "substantially overtrained," "slightly overtrained," and "adequately trained." As can be seen, the 175/40 graduates viewed their IERW training as more adequate than did the 180/20 graduates in most task areas with the exception of Basic and Instrument tasks. The largest differences were, as would be expected from the program content changes in the 175/40 program, in the Night, NVG, and Aeroscout task areas.

Table 8

Graduate Ratings of IERW Training Adequacy by Task Area
(Adequate; Slightly; and Substantially Overtrained)

| Aviator Task Area | | No. of Tasks | Percentage of Responses: 180/20 | 175/40 Utility | 175/40 Aeroscout |
|---|---|---|---|---|---|
| I. | Basic | 33 | 86 | 86 | 86 |
| II. | Instrument | 13 | 86 | 89 | 83 |
| III. | Tactics | 34 | 51 | 59 | 62 |
| IV. | A. Night | 19 | 46 | 84 | 79 |
| | B. NVG | 15 | 3 | 55 | 72 |
| V. | Utility | 10 | 52 | 58 | Not applicable |
| VI. | Aeroscout | 16 | 19 | Not applicable | 64 |

In the listing of 140 aviator tasks on the graduate questionnaire forms, 99 tasks were common to all groups and tracks. The Utility tasks (N=10) and Aeroscout tasks (N=16) were unique to those respective tracks. In addition, the 15 NVG tasks were not pertinent to the IERW training of the 180/20 group. Table 9 depicts mean training adequacy ratings for several combinations of groups for the Common tasks, the Utility tasks, the Aeroscout tasks, and the NVG tasks. In the case of the NVG tasks, the comparison is made only between 175/40 Utility and Aeroscout track groups, since the 180/20 group did not get IERW NVG training. Also shown in Table 9 are correlations between the adequacy ratings for the two graduate groups for the Common and Track tasks.

Table 9

Graduate Ratings of Adequacy of IERW Training
*(Adequate, Slightly Overtrained, and Substantially Overtrained)

| Program/Task Area | Mean Percentage | r | df | Difference Significance |
|---|---|---|---|---|
| 99 COMMON TASKS | | | | |
| 180/20 - All Graduates | 66.2 | +.74 | 98 | * |
| 175/40 - Utility Track Graduates | 76.8 | | | |
| UTILITY TASKS | | | | |
| 180/20 - All Graduates | 52.3 | +.68 | 9 | NS |
| 175/40 - Utility Track Graduates | 58.3 | | | |
| 99 COMMON TASKS | | | | |
| 180/20 - All Graduates | 66.2 | +.72 | 98 | * |
| 175/40 - Aeroscout Track Graduates | 76.3 | | | |
| AEROSCOUT TASKS | | | | |
| 180/20 - OH-58 Transitioned Aviators | 19.4 | +.57 | 15 | * |
| 175/40 - Aeroscout Track Graduates | 63.9 | | | |
| NIGHT VISION GOGGLES TASKS | | | | |
| 175/40 - Utility Track Graduates | 55.3 | +.97 | 14 | * |
| 175/40 - Aeroscout Track Graduates | 71.7 | | | |

* Significant at .01 level.

As can be seen in Table 9, in terms of the IERW training adequacy indices, the 175/40 graduates rate their training as significantly better (using the paired sample t test) than do the 180/20 graduates for the Common tasks and for the Aeroscout tasks. For the Utility tasks, however, there is no significant difference between the 180/20 group and the 175/40 Utility track graduates. The lack of significance here is not surprising for two reasons: (1) the 175/40 Utility and 180/20 programs were both UH-1 aircraft and Utility task oriented; and (2) the number of tasks is small, thereby requiring a larger absolute difference to reach statistical significance.

The last entry in Table 9, that comparing the two 175/40 track groups on the NVG tasks, shows the Aeroscout track group rates their IERW NVG training significantly higher than did the Utility track group. This difference is understandable in light of the differences in Utility and Aeroscout missions, differences that are reflected in the training given in the two tracks.

The correlations reported in Table 9 are of some interest in examining IERW training. The correlations indicate a relatively high correspondence between the two groups' assessments of training adequacy on a task-by-task basis (see Appendix G for individual task data).[1] Agreement is highest ($r$=+.97) for the two 175/40 track groups' ratings of NVG tasks. Agreement was relatively high for the comparisons involving Common tasks ($r$=+.74 and $r$=+.72) and Utility tasks ($r$=+.68). The lowest agreement was shown for the Aeroscout tasks ($r$=+.57), a finding that might be expected because of the lack of Aeroscout task training in the 180/20 program.

Training checkride grades provide another means of examining IERW training performance of the two track groups. However, because of the direct pertinence of checkride grades to Objective III, discussion of such data will be deferred to that objective.

Field Performance. Data pertinent to the field performance of Aeroscout and Utility track aviators have been presented under Objective I (see Tables 3-7). As was noted earlier, IP ratings of initial unit performance of graduates show the 175/40 Aeroscout track graduate to be significantly better than the 180/20 program graduate on Aeroscout tasks, while IP ratings show no difference between the two IERW programs with reference to Utility tasks. IP ratings of "current" performance favor the 175/40 Utility track graduate on Utility tasks, but the 180/20 OH-58 transitioned aviator on Aeroscout tasks.

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[1] A high correlation indicates agreement in the general ordering as to which tasks are better trained and which are less well trained. It does not necessarily denote agreement in level of adequacy of training for the various tasks. The relative difference in mean adequacy ratings is an index of level of agreement or lack thereof.

Graduates of both tracks from the 175/40 program are judged as generally able to perform most tasks adequately upon arrival at the unit, i.e., 77% of the Utility tasks receive IP performance ratings of adequate or better for the Utility track graduates, and 64% of the Aeroscout tasks receive such ratings. Clearly, both tracks are turning out graduates who can generally perform adequately that which is expected of them in the unit.

In terms of training progress made by 175/40 track graduates during their first 1½-8 months in the unit, it would appear that the Utility track graduates show more progress than do the Aeroscout track graduates. It can be seen from Tables 3 and 5 that the percentage of adequate or better ratings on track tasks changed from an "initial" 77% to a "current" 92% for 175/40 Utility track graduates, while the comparable figures for the 175/40 Aeroscout track graduates were 64% and 71%, respectively.

Conclusions

Based on the data discussed, it is concluded that both tracks of the 175/40 program are producing the desired output skills. Graduates from each of the 175/40 tracks view their IERW training as generally more adequate than did 180/20 program graduates, and IPs judged both 175/40 groups as generally adequate to initial unit needs. The Aeroscout track of the 175/40 program represents one of the major changes made in IERW. It is clearly producing a graduate who has specific skills his predecessor lacked, but the lesser progress from initial to current performance ratings suggests further monitoring of the IERW Aeroscout track for possible modifications.

OBJECTIVE III

The third objective for the evaluation concerned differences in the checkride performance of 180/20 and 175/40 students on comparable maneuvers within stages of IERW training. Data utilized were flight checkride grades extracted from Fort Rucker training records for samples of six classes each from the two training programs.

Findings

Flight phase checkride grade means for the two groups, by training phase, are shown in Table 10. There is no baseline grade for the 180/20 program in the Aeroscout task area with which to compare the 175/40 Aeroscout grades, so no comparison is reported there. The other comparisons, including that between the 175/40 Utility track combat skills and the 180/20 tactics grades, are of interest in this context and also

with reference to Objective II, just discussed. As can be seen from the table, only the difference between mean checkride grades for the UH-1 Contact Transition Phase was significant. This may reflect the reduction of Primary Phase time from 85 hours to 50 hours (see Table 1).

Table 10

IERW Mean Checkride Grades by Phase and Program
(A = 180/20; B = 175/40)

| Phase | Program | Mean | S.D. | N | Difference Significance |
|---|---|---|---|---|---|
| Primary | A | 83.7 | 3.09 | 95 | NS |
| | B | 84.7 | 3.15 | 120 | |
| Contact | A | 88.4 | 2.48 | 95 | * |
| | B | 85.8 | 2.90 | 120 | |
| Basic Instrument | A | 85.8 | 3.00 | 91 | NS |
| | B | 86.7 | 5.12 | 110 | |
| Advanced Instrument | A | 82.5 | 4.97 | 91 | NS |
| | B | 84.4 | 9.86 | 104 | |
| Tactics | A | 87.7 | 2.74 | 91 | NS |
| Combat Skills (Utility) | B | 88.1 | 3.07 | 70 | |

* significant at .01 level.

The increased variability of instrument grades shown in Table 10 by the 175/40 students, as reflected by the standard deviation (S.D.), may be related to the differences in manner and extent of use of the UH1FS in the two programs, or it may reflect other factors. Determination of such causal relationships was beyond the scope of the present effort. However, it appears from the data that the grade variability is greater in the instrument phase than in the other phases for both programs, thus indicating that the instructor pilots use more of the grade scale in the instrument phase, i.e., they do not cluster their checkride grades so tightly in the middle grade range for instruments. This may result from the fact that objective performance standards are more readily stated and evaluated for instrument maneuvers than for noninstrument maneuvers.

## Conclusions

Based on the data shown, it is concluded that there were no differences in IERW checkride performance of students in the two programs, with the exception of the Contact Phase.

OBJECTIVE IV

This objective addressed the capability of 175/40 IERW graduates to perform at the ARTEP 3/ARL 2 level[1] within three to six months after assignment to operational units. The objective was addressed primarily through the question asked graduates in the field, "What is your ARL (Aviator Readiness Level) as defined in the ATM (Aircrew Training Manual)?" In addition, data on post-IERW flight experience and field performance ratings are pertinent.

Findings

Responses to the ARL question for both the 175/40 and 180/20 sample groups are shown in Table 11. In the table, ARL levels 3, 4, and 5 are combined due to the relatively small numbers of graduates reporting at the 4 and 5 level. Graduates from the 175/40 program at the ARL 1 and 2 levels account for 85% of the total numbers responding (120/141). A comparison with graduates from the 180/20 program who preceded them in the field reveals a nearly identical percentage in ARL 1 and 2 of 86% (78/91). A chi square test applied to the data in Table 11 shows no significant difference between the two programs. Thus, the preponderance of graduates from both programs are clearly able to function at ARL 2 or the next higher classification, ARL 1, within the experience windows used.

*Table 11*

Numbers of Graduates by Aviator Readiness Level and Program Group

| Program Group | Aviator Readiness Level (ARL) 1 f | % | 2 f | % | 3, 4, or 5 f | % | Total f | % |
|---|---|---|---|---|---|---|---|---|
| 180/20 | 40 | 44 | 38 | 42 | 13 | 14 | 91 | 100 |
| 175/40 | 56 | 40 | 64 | 45 | 21 | 15 | 141 | 100 |

[1] ARL 2 is defined as: Aviators participating in unit mission training. These aviators have completed qualification and refresher training appropriate for the type aircraft flown and are learning to apply their flying skills to the mission of the unit to which assigned.

The effect of extending the 180/20 sample experience window on their flight experience has been mentioned previously. As background for examining the ARL results, the flight time data were examined. The distribution of total flying hours since graduation for the two program groups is shown in Table 12. It should be noted that the data in Table 12 cover both track subgroups for each program, whereas the flight time data cited previously in the Objective II discussion covered only the Aeroscout tracks. Inspection of Table 12 reveals that there is a substantial difference in the flight time distributions of the two groups, with the 180/20 group reporting approximately twice the flight time of the 175/40 group.[1] Over half of the 180/20 graduate group reported had accumulated in excess of 100 flying hours since graduation, whereas only 13% of the 175/40 group reported this much time. Conversely, over half of the 175/40 group reported 50 hours or less, as contrasted with only 10% of the 180/20 group.

Table 12

Total Flight Hours Since Graduation by Group

| Program Group | Total Flight Hours Since Graduation | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0-50 | | 51-100 | | 101-150 | | >150 | | Total | |
| | f | % | f | % | f | % | f | % | f | % |
| 180/20 | 10 | 10 | 38 | 38 | 30 | 30 | 22 | 22 | 100 | 100 |
| 175/40 | 89 | 57 | 45 | 29 | 13 | 8 | 8 | 5 | 155 | 99 [a] |

[a] Totals for percentages do not add to 100 due to rounding.

While it would have been reasonable to expect that the additional experience of the 180/20 group might have resulted in a difference in the distribution of their ARL ratings from that of the 175/40 group, such was not the case. In addition, the data previously cited concerning field performance of the 175/40 graduates supports their capability to perform well within the unit.

## Conclusions

On the basis of the data cited, it is concluded that the 175/40 graduate is well able to function at ARL 2 within three to six months after unit assignment. Further, the proportion of the 175/40 group showing achievement of ARL 2 and ARL 1 levels is the same as that of the 180/20 group. While the 175/40 group reported a lesser number of post-IERW flying hours than did the 180/20 group at the time surveyed, no firm conclusion can be drawn as to whether they had a lesser number of hours at the time they achieved ARL 2.

OBJECTIVE V

This objective dealt with the assignment and utilization of 175/40 Aeroscout and Utility track graduates in the field. Data include the type of aircraft being flown by graduates (assignment) and frequency of task performance in unit mission training (utilization).

Findings

Graduates were asked, "What type of aircraft are you now flying in your primary assignment?" Responses for the various program groups are shown in Table 13.

Table 13

Primary Aircraft Assignment

| Type Rotary Wing Aircraft Now Flying | Program Group 180/20 f | % | 175/40 Utility f | % | 175/40 Aeroscout f | % |
|---|---|---|---|---|---|---|
| UH-1 | 65 | 65 | 78 | 80 | 3 | 5 |
| OH-58 | 22 | 22 | 7 | 7 | 53 | 91 |
| AH-1 | 12 | 12 | 10 | 10 | 1 | 2 |
| CH-47 | 1 | 1 | 3 | 3 | 1 | 2 |
| Totals | 100 | 100 | 98 | 100 | 58 | 100 |

The results indicate that most of the graduates from the 175/40 Aeroscout track (91%) were assigned to the OH-58 aircraft, and that a substantial portion (80%) of the Utility track graduates were assigned to the UH-1 aircraft. Of the Utility track graduates assigned to other rotary wing aircraft, 7% were to the OH-58 and 10% to the AH-1. This AH-1 assignment percentage is similar to the assignment for 180/20 graduates to the AH-1 aircraft (12%). For the 180/20 graduates, three times as many graduates (22%) were assigned to the OH-58 as were those from the 175/40 Utility track (7%). There is indication that there exists some cross-assignment between graduates of the two 175/40 tracks, where Utility track graduates are assigned to OH-58 aircraft (7%) and Aeroscout graduates to UH-1 aircraft (5%).

Utilization of the 175/40 dual-track graduate was determined by the frequency with which the program graduate performed those aviator mission

tasks toward which his track training was directed. These tasks with the response frequencies are given at Appendix H. Comparative summary results for the 180/20 and the 175/40 program graduates are shown in Table 14, where mean frequency of performance is given by task type and IERW program. Examination of the differences in frequency between program groups shows a tendency for Utility mission tasks to be reported as performed more frequently by the 180/20 group, but the difference did not reach significance. For the Aeroscout tasks, the 175/40 graduates exhibited the same relative frequency of mission task performance as did the 180/20 group.

Table 14

Frequency of Performance of Utility or Aeroscout Tasks
In Mission Training by Track Group

| | Mean Frequency of Performance - Utility Tasks | | | |
|---|---|---|---|---|
| Program/Track | 0 | 1-5 | 6-10 | >10 |
| 180/20 Utility | 20.9 | 7.0 | 4.4 | 27.7 |
| 175/40 Utility | 47.2 | 11.8 | 4.5 | 20.5 |

| | Mean Frequency of Performance - Aerosocout Tasks | | | |
|---|---|---|---|---|
| Program/Track | 0 | 1-5 | 6-10 | >10 |
| 180/20 (Transitioned) Aeroscout | 11.8 | 2.8 | 1.6 | 4.9 |
| 175/40 Aeroscout | 32.9 | 9.2 | 4.8 | 7.4 |

The findings shown in Table 14 indicate that in those aviator task areas relevant to the track for which they were trained, the 175/40 Utility track graduates showed a slight, but not significant, trend toward having engaged in those tasks during mission training with lower relative frequency than did their counterparts from the 180/20 program who preceded them, while there was no significant difference between the Aeroscout groups. However, the differences in post-IERW flight time between the program groups should be kept in mind in interpreting these data.

## Conclusions

The integrity of the 175/40 IERW training program was maintained to a substantial extent as indicated by the primary assignment of the graduates to the dual-track aircraft in which they were trained. Thus, it is concluded that 175/40 track graduates are generally being assigned properly in the field. Only small percentage of graduates from each track were cross-assigned: 5% from the Aeroscout track to the UH-1 aircraft, and 7% from the Utility track to the OH-58 aircraft. High percentages of the 175/40 track graduates, 91% from the Aeroscout track and 80% from the Utility track, reported that in their primary assignment they were now flying the aircraft for which they were trained in IERW. The lower percentage for the Utility track was due primarily to the 10% of the Utility graduates who were assigned to the AH-1 aircraft.

Utilization was measured by the frequency with which the graduates participated in mission training on aviator tasks relevant to their track training. A comparison between the 175/40 Utility track graduate and the 180/20 graduate on Utility tasks indicated no significant difference in the frequency with which the tasks were performed in mission training. A similar comparison on Aeroscout tasks between the 175/40 Aeroscout track graduates and transitioned OH-58 aviators from the 180/20 program also revealed no significant difference in frequency of mission performance. Thus, for both the Utility and Aeroscout groups, the 175/40 graduate was able to participate as frequently in mission training flights, and somewhat earlier in terms of flight experience, than his 180/20 counterpart. Overall, it is reasonable to conclude, based on aircraft flown and mission frequency, that 175/40 track graduates are being utilized properly in the field.

## OBJECTIVE VI

The focus of this objective was on determination of whether the 175/40 course of instruction with a proficiency based checkride policy was adequate for completion of the IERW training objectives. Data utilized were daily training grades drawn from records of 30 175/40 IERW classes at USAAVNC.

## Findings

The approach to this objective involved development of normative data for each maneuver in each training phase[1] of the 175/40 IERW program based on the time-to-proficiency data[2] discussed in the second section of the report.

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[1] For the Primary phase, only post-solo daily grades were examined.

[2] Proficiency was defined as the achievement of three successive (+) daily grades for a maneuver.

In developing the maneuver normative data, sets of six classes were sampled at each of the five training phases, thus involving a total of 30 classes. The results are given in Appendix L for all six classes combined for each of the training phases.[1] Across the top of each of the six Appendix tables is shown the phase training day. In the first column at the left is given the number of a maneuver (as identified in the key list accompanying each table). The next three columns give the total number of persons who achieved the three (+) grades proficiency criterion, mean training day to proficiency, and the standard deviation of days to proficiency. The body of the table contains the cumulative percentage of students graded to proficiency for a given training day for each maneuver. By inspection of a row, the training day at which 50% (or any other percentage) of the students were graded to maneuver proficiency can be determined.

For example, at the Primary Phase (Phase I) for maneuver #3 (listed on the maneuver key as Hovering Flight), 77 of the 118 students whose records were examined were graded to proficiency. The mean training day to proficiency for those achieving proficiency is 12.3, and the standard deviation 4.41. On Day 3, 4% of the group (i.e., three students) had reached this level. Proceeding through the table, maneuver by maneuver, the training day mean values can be followed to show the sequence in which maneuver mastery is achieved by the average student. The last row entry in the table, i.e., maneuver #99, represents the proficiency based checkride and the N shown for it (118) represents the total number of students completing this phase in this sample.

The maneuvers presented in all six tables in Appendix L are listed within each phase in rank order by mean training day to graded proficiency from low to high, i.e., those maneuvers on which the average student achieved proficiency first are listed first, those where proficiency was achieved second are listed second, etc. Inspection of the data in those tables suggests that there is an inverse relationship between student group size associated with a training day mean and the training day sequence, i.e., as the maneuver mean training day approaches the end-of-phase checkride, there is a tendency for progressively fewer students to be graded to maneuver proficiency. Product-moment correlations were obtained to assess this relationship.

For the Primary Training Phase the association between mean training day and student group size is fairly strong, the correlation being -.88. For the Transition, Night, Combat Skills Utility track and Aeroscout track the correlations are moderate, yielding coefficients of -.54, -.62, -.45, and -.57 respectively. For the Instrument Phase, the relationship between group size and mean training day is essentially zero.

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[1] There is a table for each of the first four training phases, plus separate Combat Skills Phase tables for the Utility and Aeroscout tracks.

The effect of these correlations (Instrument Phase excepted) is that as one progresses through the sequence of maneuvers, not all students reach the criterion of proficiency, and the later in the phase that the average student reaches proficiency, the smaller is the number involved who do reach proficiency. If one assumes that the N for Maneuver 99, the end-of-phase checkride, is the upper limit of group size for each phase, it can be seen that substantial numbers of students did not achieve the three (+) proficiency criterion before taking the end-of-phase checkride. In fact, on only one of 293 maneuvers listed did all students in the phase reach the three (+) criterion.

The question may be asked whether this tendency for fewer students to reach proficiency as a function of increasing mean day to proficiency is the product of the stringency of the criterion of proficiency, i.e., three successive daily (+) grades on a maneuver. Accordingly, an examination was conducted of the Night Phase daily grades utilizing three different criteria of maneuver proficiency, i.e., three successive (+) grades, two successive (+) grades, and one (+) grade. The correlations of number of persons reaching proficiency and mean day to proficiency for the 3(+), 2(+), and 1(+) criteria were -.62, -.72, and -.61, respectively. Thus, the criterion made no difference in this relationship. It did, however, affect the mean numbers of persons achieving proficiency and mean day to proficiency in expected fashion. The mean persons per manuever achieving proficiency increased from 55.8 to 63.1 to 81.9 for the 3(+), 2(+), and 1(+) criteria, respectively, while the means of training days to proficiency over all maneuvers decreased from 8.2 to 7.7 to 6.5, respectively.

The stability of maneuver progression order was examined over all phases and maneuvers. Three different samples of two classes each were examined separately for each phase of training utilizing only the 3(+) criterion. Product-moment correlations among these three two-class samples for maneuver mean day to proficiency are shown in Table 15. As can be seen, the correlations in the table give a fairly consistent picture. At each phase, the relationship of the mean training day to proficiency for the various maneuvers is fairly consistent across samples. In only one instance, Phase 2 (UH-1 Transition), did the relationship tend to weaken ($\underline{r}$=+.64). For the remaining comparisons, order of progression for mean training day to graded proficiency was quite consistent, with correlations ranging from .80 to .94.

A major factor influencing the implementation of the maneuver proficiency grading procedure appears to be in the time allotted for the attainment of maneuver proficiency. Therefore, the potential influence of the proficiency based checkride on phase training time was considered.

Table 15

Class Sample Correlations for Mean Training Day to Proficiency by Maneuver within Phase

| Phase 1 (Primary) | | | | Phase 2 (Contact) | | | |
|---|---|---|---|---|---|---|---|
| Sample No.[a] | 1 | 2 | 3 | Sample No. | 1 | 2 | 3 |
| 1 | - | | | 1 | - | | |
| 2 | 85[b] | - | | 2 | 79 | - | |
| 3 | 84 | 88 | - | 3 | 80 | 64 | - |

| Phase 3 (Instrument) | | | | Phase 4 (Night) | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | | 1 | 2 | 3 |
| 1 | - | | | 1 | - | | |
| 2 | 92 | - | | 2 | 87 | - | |
| 3 | 94 | 95 | - | 3 | 94 | 89 | - |

| Phase 5A (Combat Skills: UH-1) | | | | Phase 5B (Combat Skills: OH-58) | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | | 1 | 2 | 3 |
| 1 | - | | | 1 | - | | |
| 2 | 90 | - | | 2 | 85 | - | |
| 3 | 92 | 85 | - | 3 | 83 | 88 | - |

[a] Each sample consisted of two 175/40 IERW classes at each training phase. However, the same classes were not involved across phases.

[b] Decimal points are omitted from correlations. All values are positive.

Table 16 shows the cumulative percentage of students completing the phase checkride on a given training day for each IERW training phase and the mean cumulative phase flight training hours for those completing on that day. For example, in the Primary Phase, of the 118 students given the checkride, one percent (i.e., one student) completed the checkride by the 28th training day of this phase, and he had 36.4 hours of flying time in this phase at completion of the checkride. Going on across the table, it can be seen that by the 33rd phase training day about two-thirds of the students (65%) had completed the phase, and for those completing on

Table 16

Training Days To Checkride

**PRIMARY**

| Phase | | | | | | | | | | | | Program Time: Days | Program Time: Flight Hours | Actual Time: M Flt. Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N=118[a] (N=111)[b] | Training Day | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 40 | 50 | 42.3 |
| | Cum. % | 1 | 1 | 11 | 26 | 37 | 65 | 81 | 95 | 98 | 100 | | | |
| | Mean Flt. Hrs. | 36.4 | - | 38.5 | 39.8 | 41.5 | 42.7 | 44.1 | 44.4 | 45.1 | 46.1 | | | |

**TRANSITION**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N=120 (N=116) | Training Day | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | 20 | 25 | 22.0 |
| | Cum. % | 2 | 3 | 15 | 45 | 65 | 85 | 100 | | | | | | |
| | Mean Flt. Hrs. | - | 17.1 | 18.6 | 21.6 | 22.1 | 23.2 | 23.3 | | | | | | |

**INSTRUMENT**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N=103 (N=94) | Training Day | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 40 | 20 | 19.2 |
| | Cum. % | 4 | 5 | 11 | 17 | 35 | 58 | 69 | 87 | 95 | 99 | 100 | | | |
| | Mean Flt. Hrs. | 16.8 | 17.5 | 18.4 | 19.0 | 18.8 | 19.6 | 19.1 | 20.1 | 18.9 | 19.7 | 22.1 | | | |
| | M Sch. UH1FS | 29.8 | 33.0 | 33.3 | 33.5 | 33.2 | 33.4 | 34.2 | 34.4 | 34.6 | 34.9 | 32.3 | UH1FS Total | | M=33.6 |
| | M Unsch. UH1FS | 2.2 | 3.4 | 8.0 | 5.1 | 3.1 | 5.1 | 1.2 | 4.8 | 3.4 | 6.6 | 1.5 | UH1FS Total | | M= 4.3 |

Table 16 (cont'd)

NIGHT

N=100
(N=99)

| Training Day | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | → | 20 | 20 | 20 | 11.6[c] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cum. % | 7 | 22 | 41 | 51 | 71 | 83 | 94 | 100 | | NVG | | | |
| Mean Flt. Hrs. | 9.8 | 10.7 | 11.0 | 11.8 | 12.3 | 12.7 | 12.1 | 11.6 | → | (4.5) | | | (16.1) |

COMBAT SKILLS (UTILITY)

N=70
(N=68)

| Training Day | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 40 | 60 | 48.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cum. % | 3 | 6 | 11 | 11 | 16 | 43 | 79 | 94 | 97 | 100 | | | |
| Mean Flt. Hrs. | 41.2 | 43.1 | 47.7 | - | 47.4 | 51.1 | 50.2 | 44.5 | 43.1 | 47.4 | | | |

COMBAT SKILLS (AEROSCOUT)

N=28
(N=28)

| Training Day | 36 | 37 | 38 | 40 | 60 | 55.3 |
|---|---|---|---|---|---|---|
| Cum. % | 25 | 64 | 100 | | | |
| Mean Flt. Hrs. | 56.5 | 54.5 | 55.4 | | | |

[a] N for cumulative % includes turnback students.

[b] (N) for mean flight hours and UHIFS does not include turnback students.

[c] The Night maneuvers except for Night Vision Goggles (NVG) are normally completed by Day 15, and the last 5 days are devoted to NVG. The mean phase time (11.6 hours) shown does not include NVG. NVG time is scheduled as 4.5 hours. This time (4.5 hours) is included in the (16.1) hour mean phase time.

day 33, their average flight hours totaled 42.7.[1] All 118 students had completed the phase checkride by the 37th training day, and those completing on that day had an average time of 46.1 hours. As shown in the last three columns in the table, 40 days and 50 flight hours were allocated to this phase of training, and the overall mean hours to completion was 42.3.

In the Instrument Phase, the UH1FS (simulator) usage differed between the 180/20 and 175/40 programs, as has already been discussed. Accordingly, the relationship of UH1FS time-to-phase checkride completion is also shown in Table 16. Both UH1FS scheduled (i.e., based on the syllabus) and unscheduled time in mean hours are shown for those completing by training day. As can be seen, the total UH1FS usage, i.e., total mean scheduled time used plus unscheduled time used, exceeds the 35 hours alloted to the Instrument Phase.

It will be recalled (see Table 1) that the remaining five of the 40 UH1FS program hours are devoted to Tactical Instrument training during the Combat Skills Phase. That latter UH1FS time is scheduled on two days; 2.0 hours and 3.0 hours on Days 32 and 35 in the Utility Track Combat Skills Phase, and 2.0 and 3.0 hours on Days 33 and 36 in the Aeroscout Track Combat Skills Phase, respectively. Simulator usage by students in each track was in accord with the program schedule, plus 1.0 hour of additional unscheduled time was utilized on Day 32 in the Utility track and Day 33 in the Aeroscout track.

An inspection of the results tabulated in Table 16 reveals only two phases, Transition and Instruments, in which the allotted days were fully utilized. In all the other phases, some time remained after all students had completed the checkride. For most phases, the final days to completion accounted for only a small percentage of the students evaluated. In terms of programmed flight hours, the various phases were completed on the average in from one to 12 hours less than programmed.

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[1] It will be noted that the mean flight hours does not show a perfect relationship with training day number. This lack of correspondence results because the mean flight hours are only for those persons completing the phase on a given training day. Thus, for example, for the Instrument Phase, those persons completing on day 38 had a mean phase flight time of 19.7 hours, while those completing on day 39 had a mean time of only 18.9 hours. The reader should also note that the numbers of students (N) involved differed for the cumulative percent determination and for the mean flight and UH1FS hours. These two computations were made in separate analyses of the same classes. In the cumulative percent data, turnback students were included, whereas in the mean flight and UH1FS hours computations turnbacks were not included, thereby resulting in slightly smaller Ns. This also accounts for the absence of a mean time figure on Day 14 of the Transition Phase.

Several points should be noted. First, the data indicate that some students were not graded to proficiency on some maneuvers in each phase of training. Thus, some students were given the end-of-phase checkride without having demonstrated proficiency, at least in terms of the three (+) criterion. Second, it is clear that the nominal program flight hours (175) is not the mean student flight time. However, the mean UH1FS time exceeded the nominal 40 hours when the unscheduled hours are included. The mean flight time for the students examined was less than 175 hours,[1] and even those students completing phases toward the end of the allotted phase training days were exhibiting phase mean flight hours that were generally less than the nominal phase programmed hours. Thus, the 175/40 program was not operating with a mean flight time of 175 flight hours, with faster students completing in somewhat less than 175 hours and slower students completing in somewhat more than 175 hours.

In view of these observations, the reasons for some students not achieving proficiency on some maneuvers become somewhat clearer; the 175 and 40 hours appear operationally to be used more as upper limiting values than as mean student values. This also makes the responses of Fort Rucker flight instructional personnel (see Appendix J), who indicate difficulty in achieving proficiency within programmed time limits, more understandable.

Conclusions

Based on these findings, it would appear that the proficiency based checkride policy as it has operated in the 175/40 classes examined did not allow completion of all maneuver training objectives to the level of proficiency established. However, in spite of this fact, student training times did show individual variability and student checkride grades and attrition data compare favorably with the previous 180/20 program. Further, the time to proficiency data exhibit substantial reliability and would have, thus, the actuarial stability required in a proficiency paced instructional system. Therefore, it is concluded that the proficiency based checkride policy is quite feasible for IERW, though the interpretation of program lower and upper limiting flight-hour values and mean flight hours should be re-examined.

OBJECTIVE VII

This objective treated the compatibility of various elements of the 175/40 IERW program with the concept of individualized training.

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[1] Summing the phase flight hour means and adding the program 4.5 hours of NVG time to the Night Phase time, indicates the Utility track students completed IERW with a mean time of 147.8 flight hours and the Aeroscout track students completed with a mean of 154.9 hours. However, these times do not include turnback students.

Individualized training is basically a course management concept, and the compatibility of the IERW program with individualization was examined in terms of the four factors: (1) instructional delivery; (2) instructional objectives; (3) performance measurement; and (4) management. The analysis of this area was rational, rather than empirical, and involved examination of various IERW training materials, practices, and procedures.

Findings

Because of the nature of the evaluation of this objective area, and because that which was being examined is a training concept rather than training performance data, some discussion of the self-pacing concept and its characteristics is in order. Necessarily, much of the material cited as "findings" is discussion of the concept.

The concept of individualization of instruction,[1] in combination with proficiency progression, has become increasingly prominent in training. In aviation, these concepts have achieved their greatest prominence (and perhaps success) in the training programs of the commercial airlines. In those and many other applications, proficiency progression and individualization have been found generally to reduce training time and cost, and to produce graduates who are generally more capable.

Instructional Delivery. To be compatible with individualization concepts, the mechanisms for delivering instruction must have some capability for independent, individualized usage by students. This is in contrast with delivery mechanisms that require group instruction. Thus, individualization places an emphasis on media such as sound-slide with individual study facilities, programmed text materials, individual workbooks, individual tutoring, simulation, computer-assisted instruction, and other individual media. Correspondingly, a heavy reliance on platform lecture or group-paced instruction is generally not compatible with individualization. The syllabus should offer the possibility of multiple sequences or combinations of instructional events dependent upon individual student needs and progress.

By its nature, much of flight instruction is an individualized, one-on-one activity. In this sense, it is highly compatible with the individualized approach, probably more so than most Army training courses. The student-to-instructor ratios that obtain at USAAVNC (in the range 2:1 to 3:1) bear this out.[2] However, some combat skills instructional events (formation, multi-ship tactical operations,

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[1] The reader is reminded of the distinction that has been drawn here between "individualized pacing" and "self-pacing."

[2] See DRM data at Appendix N.

etc.) necessarily have a degree of group pacing, while others (e.g., night flying) involve facilities and personnel support requirements that mitigate against highly individualized scheduling. Nevertheless, the flight portion of the program is generally well suited to individualization. These observations apply also to the synthetic training aspect of the delivery system. In fact, one of the prime attractions of the flight simulator, in terms of instructional effectiveness and efficiency, is its obvious adaptability to individualized instruction.

The academic portion of the instructional delivery system relies almost completely on programmed instruction in the Primary and Instrument phases, but uses platform instruction and practical exercises for the UH-1 Transition, Night, and Combat Skills phases. Thus, the two of the phases of IERW academic instruction are quite compatible with individualization, while the remaining phases are less so. As already noted, the flying events in these later stages are also somewhat less compatible with individualization because many are necessarily group events.

The syllabus does not encourage (nor prohibit) individualization. It does not provide for diagnostic flights from which individually prescribed instructional sequences are derived. The implication is that all items in the syllabus will be taught and in the sequence listed. For individualization, mandatory and optional sequences of objectives and instructional events should be identified.

The various POIs for instructor pilots were examined to ascertain whether the methods of instruction material covers individualization and proficiency progression concepts. This review indicated there is no treatment of individualization and proficiency progression, nor of their relationships to statements of objectives and performance measurement. The instructor's role under the individualization concept is much more that of diagnostician, prescriber, and training manager, and less that of syllabus executor. This role requires training if it is to be carried out effectively. Such training does not appear to be an integral part of the IERW instructor's preparation.

The maneuver proficiency data discussed under Objective VI indicate that individualization is operating in terms of the time devoted to individual maneuvers and phases for individual students. However, the requirement that progression between stages be on a class-group basis works against realizing savings benefits for flight and calendar time.

Instructional Objectives. One assumption of the individualized approach is that there are well-defined objectives for instruction and that their mastery constitutes satisfaction of overall course

goals. The objectives should be articulated in such a fashion that one can reliably determine that the student's performance meets the objective. Thus, clear statement of the performance, along with its associated conditions and standards, greatly aids individualization of instruction.

The instructional objectives for the various stages of IERW training are stated in the Flight Training Guides.[1] In most cases, the various tasks and maneuvers appear to be stated in appropriate detail and with objectively described performance standards. Statements of conditions are not as rigorously and regularly treated in the Guides as are standards, but are generally adequate. Some of the combat skills objective areas do not have clear and concise standards stated, perhaps because they frequently deal with much more global behavioral units and involve more contingencies. However, the manner in which objectives are stated for IERW, overall, appears quite compatible with individualization.

Performance Measurement. In most individualized instructional systems, performance measurement is a key enabling mechanism. Objectives with their associated conditions and standards must be stated, as noted above, but the system by which trainee performance is measured and evaluated must be capable of determining whether the standards are met and must make such determination in kind. It does little good to have rigorous, detailed, and objective standards if the IP or checkpilot cannot or does not gauge student performance in those same terms. Instructor Pilot measurement of day-to-day performance is highly important to individualization, because it is at this level that the variations in sequencing of instructional events and rates of progress must take place. If such variations do not take place, then the individualization concept breaks down and its benefits in time and resource expenditure savings will not materialize. The end-of-phase quality control checkride mechanism must also measure performance in terms of objective standards to insure that the student (or representative samplings of students) are meeting those standards.

The performance measurement system used in IERW is basically a subjective grading system. The only substantial exception to this is the use of the Pilot Performance Description Record (PPDR) for the Primary end-of-phase checkride. The PPDR contains specific performance items, mostly objective scale items, with performance standards shown. The special proficiency grading for daily maneuver performance (i.e., the (+) and (-) grading) utilized in this evaluation is a further step toward more objective measurement. It was basically an

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[1] These guides are in the process of being replaced by the Flight Training Supplement derived from the Aircrew Training Manuals.

augmentation of the established grading system rather than a pass-fail grading system. There may be some doubt as to the extent, however, to which the IPs responded to the individual component item standards with this augmentation. The time-to-proficiency analyses previously described suggest that either most students exit training phases or stages without having achieved graded maneuver proficiency, or that there is some question as to the consistency with which attention is devoted to the objective standards or the appropriateness of some of the standards. Numerous research studies have shown that instructors typically require some special training to utilize objective measurement approaches effectively, and such training is not given the IERW instructor.

As noted, the IP's capability to measure student progress against relatively objective performance standards is important to his diagnostic-prescriptive function as a training manager, and the use of such measurement approaches is also important to the management of training quality control through end-of-phase checkrides. The relative emphasis on use of subjective measures of flight performance in IERW does not prevent the possibility of individualized instruction, but a greater degree of objectivity in performance measurement would be more supportive of the concept.

Management. To be compatible with individualization, the training management system should be structured in such a way that it will allow, at least within limits, relatively great amounts of freedom in the scheduling and flow of instructional events. There also must be positive incentives to students, instructors, and managers alike to utilize and achieve the benefits of individualized instruction. For example, if time is saved or resources conserved, all persons associated with that result should receive and be aware of receiving some benefit. This has traditionally been a difficult matter in the individualization of military flying training programs, because flying greater numbers of hours has a positive incentive value (personal pride, aeronautical ratings, flight pay gates, etc.), while fewer hours has been a disincentive. The management system should be organized to handle personnel on a variable (but actuarily predictable) flow schedule to be highly compatible with individualization.

There are perhaps more serious incompatibilities with individualization in the management area than in all the others described. Course management in IERW is geared toward maintaining class integrity, so the student's progress from phase to phase is geared to the class schedule. As a result, there is a likelihood of spreading whatever training time is required for individual students over the scheduled phase calendar period so that the more rapid learners will not have inordinately long breaks or "dead" periods between phases.

The positive incentive value of having the individual student accumulate greater numbers of flight hours (rather than fewer) is generally supported by the organization and management structure of IERW and may thus tend to discourage individualization. There is no real incentive for the student to move more rapidly through the course than do his peers (e.g., time off, choice of assignment, etc.), nor is there much incentive for the IP or the training manager to move the student in such fashion. Even if the IERW management organization did encourage accelerated training progress, there is doubt that the personnel assignment and distribution system for graduates would be able to take advantage of such progress.

Students complete individualized programs with varying amounts of training time required as a function of individual differences in rate of learning. The result usually is a reduction in time used for the total student group from that required in group- or fixed-pace programs, since group-paced program times are necessarily fixed at the time levels required for slower students to complete training.

There are two general approaches to the use of "time saved" (and the associated dollars) from proficiency progression, individualized training programs.[1] The simplest approach, conceptually, is to translate "time saved" into actual realized savings through reduced training costs. The other, and generally more usual in the aviation community, is to utilize such "savings" to increase trainee skill levels or to enrich the content of training through the introduction of additional tasks beyond those contained in the basic curriculum. By its nature, such enrichment can only be provided to the more apt students who complete the basic objectives with time to spare. The slower learner does not benefit. The enrichment approach is a defensible view, at least partially, if one or more of the following situations exist: (1) established performance standards are too low to support field needs; (2) tasks that should be trained at the institution are omitted from the basic curriculum; (3) additional enrichment training provided fast learners actually reduces (i.e., through displacement from field to school) subsequent field training costs; or (4) the costs of individualization outweigh the benefits.[2]

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[1] These same comments would apply to time saved through other means such as better course design, use of simulation, etc.

[2] An example of such cost-benefit analysis might be hypothesized with reference to the personnel assignment system. If changes were made in that system to enable it to handle individualized graduation dates (rather than programmed class graduation (dates), the costs of that change would have to be weighed against the benefits.

Any real determination with reference to these factors was beyond the scope of the present effort. It should be noted, though, that (1) and (2) would be reflective of poor course design.

From a different perspective, the desire to use "saved" time through optional training enrichment may reflect a lack of confidence in the performance measurement system as a means of providing assurance that all objectives have been mastered by a student with less than the programmed hours. If so, the instructor would be concerned as to whether such a student is indeed as ready to go to the field as his peers who require more time to accomplish the same objectives. The assumption is frequently made that overall competence is primarily a function of accumulating more experience (i.e., more flight time), rather than mastery of a given set of objectives independent of the amount of time involved. The institutional questionnaires administered to instructors at USAAVNC gave evidence of a number of specific tasks or areas in which instructor opinion was that allotted time was insufficient to achieve proficiency for many students. There may be a tendency for the IP to conclude, therefore, that time should be reduced for no student lest there be a reduction in his proficiency. Such a conclusion, while not logically sound, would tend to make some instructors reluctant to use individualization in any significant fashion. It should be noted, however, that the data do show inter-student training time variability, but with mean times below the nominal program value.

The positive and negative aspects of IERW, i.e., relative compatibility (+) or incompatibility (-) with individualized instruction, are summarized in the following listing. This listing represents an overview of the major points discussed in each of the four areas related to the concept of individualization and the compatibility of IERW with that concept.

- Instructional Delivery

  (+) One-on-one Flight and SFTS Instruction
  (+) Programmed Academic Instruction for Primary and Instrument Phases
  (-) Formation and Multi-Ship Tactical Operations
  (-) Platform Instruction for Transition, Night, and Combat Skills Phases
  (-) Syllabus and Program of Instruction (POI)

- Instructional Objectives

  (+),(-) Detailed Training Objectives and Performance Standards for Maneuvers

- Performance Measurement

  (-) Objectivity of Performance Evaluation Relative to Detailed Standards

- Management

  (-) Schedule Flexibility
  (-) Class Integrity
  (-) Flight Hour Reductions

Other Factors. Several other aspects of IERW are worthy of note here. High student grades in IERW are viewed as motivators by students and instructors alike. Track selection is influenced by grades, and honor graduate status is a desired goal. Most instructors and students assume that more time and practice on any task or maneuver will likely lead to better performance (not just up to standard, but well above standard) and better grades. Hence, there is some disincentive value in receiving less time and merely reaching the standard.

This factor becomes quite important in a training system in which track selection or field assignment is based on training grades and in which the lower-time, rapid-learner student may be penalized (or feels he is penalized). This factor is already operative to some extent in the dual-track 175/40 IERW program and will become of even more concern if the Army institutes a quad-track selection based on flight training grades. Under such circumstances it is likely that there will be a great tendency on the part of students and instructors alike to accumulate as much practice (and time) as possible prior to any given checkride unless the management and performance measurement systems in IERW are changed.

As an additional part of the examination of the individualization area, the flight training practices of the Air Force, Navy, and Coast Guard were examined. The Air Force uses proficiency advancement in only limited fashion in its undergraduate pilot training (UPT) program, the program being generally group paced. Individualization is used more extensively in Air Force graduate-level courses. The Navy uses a UPT program that is generally syllabus-paced as to events, but students "trickle" through the program in relatively small groups rather than the larger class groups that characterize Army and Air Force UPT. Thus, the Navy is not as limited in variable phase-to-phase progress and flow of students as is the Army. However, the Navy provides an example of the incompatibilities between individualization and the desire for high grades In Navy UPT, track selection and fleet cockpit assignments are made

competitively, based largely on training grades.[1] Consequently, all scheduled flights are generally flown and students exhibit little time variability. The Coast Guard presents the fullest approach to an individualized, free-flow program based on proficiency advancement. Their experience indicates the concept to be quite feasible when the training management structure is organized to accommodate individualization.

One reference of some interest[2] was found concerning this topic. In it, the author concludes that proficiency advancement can be beneficial, but that in practice there are often problems. He cites four situations that result in problems with its use:

1. When many new tasks or maneuvers tend to be introduced in each instructional period. This is probably more characteristic of advanced training than of UPT where more repetitive practice is given. The result of speeding progress when numerous tasks are given may be that tasks are omitted.

2. When track or job placement depends on level of training performance.

3. When training is given in phases and between phase progress is by class grouping

4. When the instructional events require groups of students as in formation flying.

The four situations cited by Miller as being somewhat incompatible (though not necessarily to the point of prevention) with individualized instruction have been discussed as they pertain to the 175/40 IERW dual-track program. All four apply to some extent.

Conclusions

Based on these observations and findings, it is concluded that there is no basic incompatibility between the current 175/40 IERW program and

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[1] Sometimes individual student grade averages are computed to the second decimal point in such decisions. It is not likely that the precision of the daily and checkride grades on which such averages are based merits this kind of differentiation.

[2] Miller, J. C. The Integration of Proficiency Advancement Principles into the Department of Defense's Flight Training Program. Research Report No. 481, Air War College, Air University, Maxwell AFB, Ala., 1978.

the concept of individualization. There are areas in which the compatibility could be increased, e.g., the management area, but the Army and the IERW student alike should be able to realize substantial benefits from proficiency progression and individualization with appropriate changes and attention to the processes involved in the concept. And, it must be noted that in spite of any such incompatibilities, individualization as structured in the 175/40 evaluation met the requirements of the flight training program.

OBJECTIVE VIII

The model for monitoring and evaluating the IERW program is contained in Appendix P.

OBJECTIVE IX

The report prepared by DRM is at Appendix N.

OVERVIEW

The treatment of the nine evaluation objectives has provided a comprehensive look at details of both the 180/20 and 175/40 IERW programs, as well as the two training tracks of the latter program. It is appropriate to bring these findings together into an integrated overview. The three broad technical evaluation goals stated in Section I of this report provide an appropriate framework for such a synthesis. They also allow the introduction of certain additional data of interest.

Assessment of IERW Training

The first of the general technical objectives called for assessment of the extent to which the 175/40 program achieves IERW training objectives. As has been shown, the 175/40 IERW program is generally achieving the objectives established for it in both training tracks. It represents an increment in types of flying skills provided the graduate, and the graduates perform adequately in the field. The appropriateness of the skills taught has been addressed in the evaluation, and the results indicate that further content changes to the IERW program should be more matters of emphasis than of actual insertion/deletion of new/old content. However, the following information is also of interest in that regard.

Unit IPs were asked to rate 12 skill/task areas in terms of their criticality or importance to their units' missions and in terms of the level of proficiency to which USAAVNC should teach them. Results are

summarized in Table 17. In terms of task importance, the more critical areas to the IPs were Low Level Flight, General Instruments, Internal Loads, and NOE Flight. The least critical areas were Night Vision Equipment, Tactical Instruments, Formation Maneuvers, and External Loads. With reference to the level of proficiency to which USAAVNC should teach these skill areas, there is a clear-cut position that General Instruments, Airways Instruments, Night Flight, Low Level Flight, and NOE Flight should be taught in IERW to a high level of proficiency, i.e., to a level at which the graduate is able to perform with no or only minor assistance. The only areas in which a substantial proportion (37%) of the IPs felt USAAVNC should teach only to the introductory or familiarization level was the use of Night Vision Equipment. However, Zone Reconnaissance, Select Landing/Holding/Assembly Areas, and External Loads were recommended to be taught only to the introductory or familiarization levels by 20% or more of the IPs.

The findings just cited concerning unit requirements and IERW proficiency levels are generally consonant with the IP narrative responses which are summarized in Appendix I. Examination of the narrative responses reveals some tasks where more emphasis in IERW training is suggested, but virtually no real suggestion of new material that should be included. Areas suggested for deletion should be considered in the USAAVNC's ongoing ISD process with specific resolution of training needed in the areas of NOE, NVG, and Tactical Instrument.

Thus, on the basis of the field performance data, it can be concluded that the 175/40 IERW course is accomplishing its objectives and that those objectives are appropriate to the requirements of the field.

## Evaluation of Program Changes

The second general technical area dealt with the effectiveness of the program changes represented in the 175/40 program as compared with its predecessor, the 180/20 program. Accordingly, the four major areas of program change (i.e., dual-track, night, instruments, and NVG) will be examined briefly. In addition, another area of considerable interest will be examined, i.e., the training attrition experience under the two programs.

Dual-Track Training. The change to the dual-track concept in the 175/40 program does not appear to have had major effect on the Utility track graduate in terms of his initial unit skills as compared with those of his 180/20 predecessor. Neither does his institutional performance appear of significantly different quality. The Aeroscout track graduate, however, appears to have initial unit skills superior to those of his 180/20 counterpart who received his OH-58 transition in the unit. Because of the importance of graduate performance capabilities upon initially reporting to the unit, these findings are of considerable interest

Table 17

IP Ratings of 12 Selected Skill Areas:
Importance and Level to Which USAAVNC Should Teach
(Percentages of IPs Responding)

| Skill/Task Areas | Task Importance | | | Teaching Level | | |
|---|---|---|---|---|---|---|
| | Considerable or Critical | Moderate Importance | None or Minor Imp. | Perform with No or Minor Assistance | Perform with much Assistance | Not Teach or Intro/ Fam Only |
| 1. Night Flight | 56 | 34 | 9 | 97 | 0 | 2 |
| 2. Night Vision Equipment | 15 | 10 | 75 | 51 | 12 | 37 |
| 3. Low Level Flight | 83 | 12 | 6 | 96 | 2 | 2 |
| 4. NOE Flight | 66 | 9 | 25 | 95 | 2 | 3 |
| 5. General Instruments | 72 | 19 | 9 | 99 | 0 | 1 |
| 6. Airways Instruments | 50 | 34 | 16 | 97 | 1 | 1 |
| 7. Tactical Instruments | 29 | 25 | 46 | 71 | 12 | 17 |
| 8. Internal Loads | 71 | 17 | 12 | 83 | 8 | 9 |
| 9. External Loads | 37 | 19 | 44 | 62 | 18 | 20 |
| 10. Formation Maneuvers | 35 | 19 | 45 | 66 | 20 | 13 |
| 11. Select Landing, Holding, & Assembly Areas | 54 | 25 | 21 | 58 | 23 | 20 |
| 12. Zone Reconnaissance | 46 | 21 | 33 | 49 | 22 | 29 |

in evaluating the changes made in IERW. Both tracks of the 175/40 program appear to be functioning quite effectively in turning out capable graduates who meet field needs.

Night Training. The divergence in this area for the 175/40 program was represented by a change in structure from the 180/20 training. Where night training in the 180/20 program had been included as a small fraction of tactical training, the increased emphasis on night training in the 175/40 program is attested to by its status as a separate training phase. Since there was no phase training grade given to night flight in the 180/20 institutional training, the assessment of change was confined to operational performance indices.

In terms of the competency index, described earlier, the field performance of the 175/40 graduates on Night tasks was superior on both initial and current IP performance ratings in the field. The consistency of the differences in favor of the 175/40 graduates for both initial and current performance is of interest in view of the greater amount of total flight time accumulated by the 180/20 group following graduation.

Whether the lesser total flight time of the 175/40 graduate was also reflected in his having less night flight time in the field than his 180/20 counterpart was also considered. Night time reported by graduates from the two programs in shown in Table 18.

The difference in night time reported by the graduates is significant (chi square = 34.0, df = 1; $p < .01$), with the 180/20 group reporting more night time. Further examination of night time data for the separate 175/40 tracks reveals the group difference between programs was more pronounced for Utility track graduates than for Aeroscout track graduates. Thus, in spite of having had less night time in the field than had the 180/20 group, the 175/40 graduate group exhibited superior night skills. This result speaks well for the night training given in the 175/40 program.

Table 18

Night Time Since IERW Graduation

| Program | 10 Hours or Less | | 11 Hours or More | | Total | |
|---|---|---|---|---|---|---|
| | f | % | f | % | f | % |
| 180/20 | 41 | 48 | 45 | 52 | 86 | 100 |
| 175/40 | 130 | 83 | 26 | 17 | 156 | 100 |

Instrument Training. In the Instrument Phase of training, considerable reliance was placed upon the simulator as the training vehicle. In the 180/20 program all 20 hours of simulator time was devoted to this phase. However, in the 175/40 program, five of the 40 hours were applied to tactical instrument training, during the Combat Skills Phase, with the other 35 hours devoted to the Instrument Phase. The allocation of simulator time in the Instrument Phase also differed between the two programs. In the 180/20 program, the entire 20 hours of UH-1FS time was given in the early (Basic) stage of the Instrument Phase, while the 175/40 student received only 10 hours of simulator time in Basic. In the later Advanced stage for the 180/20 program, all training was in the UH-1 aircraft and none in the simulator, while the training for the 175/40 student alternated between the UH-1 aircraft (20 hours) and the flight simulator (25 hours). Thus, the assessment of change in instrument training reflects both the allocation and amount of simulator time.

Institutional comparison of the two programs was made on the basis of flight checkride grades assigned students upon completion of the early (Basic) and later (Advanced) stages of instrument training. As has already been shown, there were no significant differences between the two groups on these measures. The results indicate that the manner in which the simulator time was allocated in the two programs had no appreciable effect upon the instrument training grades.

Operational performance of the two graduate groups in the unit, as assessed by the unit instructor pilot, presented a different picture. In contrast to the flight grade comparison, the field performance assessment indicates there is a discriminable difference in instrument performance between participants of the two programs, a difference that favors the 175/40 program. To further illuminate this area, the post-IERW simulator and actual instrument training times are shown in Table 19.

Table 19

Simulator and Actual Instrument Time Since Graduation

UH1FS SIMULATOR TIME

| | 10 Hours or Less | | 11 Hours or More | | Total | |
|---|---|---|---|---|---|---|
| Program | f | % | f | % | f | % |
| 180/20 | 21 | 25 | 64 | 75 | 85 | 100 |
| 175/40 | 125 | 81 | 30 | 19 | 155 | 100 |

ACTUAL INSTRUMENT TIME

| | 10 Hours or Less | | 11 Hours or More | | Total | |
|---|---|---|---|---|---|---|
| Program | f | % | f | % | f | % |
| 180/20 | 69 | 81 | 16 | 19 | 85 | 100 |
| 175/40 | 148 | 95 | 8 | 5 | 156 | 100 |

The data in Table 19 show that the 175/40 group had accumulated significantly less post-IERW simulator time than had the 180/20 group (chi square = 72.1; df = 1; p <.01), as well as significantly less actual instrument (AI) time (chi square = 11.5; df = 1; p <.01). Thus, the unit instrument performance advantage shown by the 175/40 graduates becomes even more impressive.

Night Vision Goggles Training. A change introduced in the 175/40 student training which had no counterpart in the 180/20 program was the use of night vision goggles in conjunction with night training. The relatively infrequent use of this item by the units sampled in the field, as shown in Appendix H, ruled against any IP assessment of this change. However, ratings of current performance level by graduates of the two programs show clearly that the 175/40 group has more proficiency in this area and that the program change is producing the desired skills.

Attrition. Training attrition data provide another means of examining differences between the 180/20 and 175/40 programs. Table 20 presents a summary of attrition data comparing the 175/40 and 180/20 IERW programs. Two sets of data are shown. The first shows comparisons for two seasonally comparable groups of 20 classes each for the 180/20 and 175/40 programs. The 180/20 classes graduated March-July 1977, while the 175/40 classes graduated March-July 1978. Officer and Warrant Officer students are shown separately.[1] The second set of data compares the last 14 180/20 classes from the so-called "realigned" 180/20 program[2] with the last 14 175/40 graduating classes (i.e., "last 14" at the time the data were gathered). Detailed attrition data are shown in Appendix M.

The data shown in Table 20 are of considerable interest. The first comparisons, i.e., the comparisons based on 20 classes, show a marked and statistically significant difference in total attrition rate between the 180/20 and 175/40 programs for the WORWAC students (chi square = 13.59; df = 1; p <.01), while the difference for ORWAC students was small and not significant. However, in comparing the 175/40 program with the "realigned" 180/20 program, i.e., the 3 vs. 4 comparisons, neither WORWAC nor ORWAC attrition rates differed significantly between programs. Thus,

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[1] Historically, there has been a difference in Officer and Warrant Officer attrition rates in IERW. These classes show no exception to that trend. However, differences in attrition rates between Officer and Warrant Officer IERW students are largely due to attrition for reasons other than flying deficiency.

[2] The original 180/20 program placed the UH-1 Transition Phase after the Instrument Phase. In the "realigned" program, the UH-1 Transition occurred before the Instrument Phase, the same phase alignment as in the 175/40 program.

the 175/40 program would appear more effective in terms of reduced attrition than was the original 180/20 program, but there was no significant difference between it and the more recent realigned[1] 180/20 program.

Table 20

IERW Attrition by Program and Student Type

| Program Sample | Student Type[a] | Total N at Entry | Graduated with Original Class f | Graduated with Original Class % | Total Graduates f | Total Graduates % | Total Attrition f | Total Attrition % |
|---|---|---|---|---|---|---|---|---|
| 1. 180/20 (20 classes) | WORWAC | 283 | 166 | 58.7 | 201 | 71.0 | 82 | 29.0 |
| | ORWAC | 96 | 78 | 81.3 | 87 | 90.6 | 9 | 9.4 |
| 2. 175/40 (20 classes) | WORWAC | 276 | 212 | 76.8 | 232 | 84.1 | 44 | 15.9 |
| | ORWAC | 176 | 148 | 84.1 | 164 | 93.2 | 12 | 6.8 |
| 3. 180/20 (14 classes) | WORWAC | 157 | 111 | 70.7 | 128 | 81.5 | 29 | 18.5 |
| | ORWAC | 108 | 88 | 81.5 | 96 | 88.9 | 12 | 11.1 |
| 4. 175/40 (14 classes) | WORWAC | 191 | 149 | 78.0 | 161 | 84.3 | 30 | 15.7 |
| | ORWAC | 122 | 101 | 82.8 | 111 | 91.0 | 11 | 9.0 |

[a] Student types refer to the Warrant Officer Rotary Wing Aviator Course (WORWAC) and Officer Rotary Wing Aviator Course (ORWAC).

The percentage of students who graduate with their original class is one way of examining the efficiency of a training program. Two programs many have similar overall attrition rates, but if one involves significantly more "turnback" students than the other, it suggests a difference in the efficiency of the training processes involved. As can be seen from Table 20, there was a differential of almost 20% in the percentages of students graduating on schedule with their original classes for the 1 vs. 2 comparisons involving WORWAC students (58.7% vs. 76.8%). This difference was statistically significant (chi square = 21.03; $df$ = 1;

[1] Evaluation of differences between the original 180/20 program and the realigned program was not a concern of the present evaluation. However, it is noted that the WORWAC attrition rate was substantially lower for the realigned program ($p < .02$). Whether the realignment accounted for this change, or whether other factors were involved, was not determined here. There was no significant change in ORWAC attrition as a result of realignment.

$p < .01$). For the 3 vs. 4 comparisons involving the realigned 180/20 course, there was still a 7% differential (70.7% vs. 78.0%) for the WORWAC students. This difference, while fairly substantial, does not reach the criterion for statistical significance. Differences in original class completion rates for ORWAC students were not significant in either comparison.

While these differences in attrition data are of considerable interest, it must be kept in mind that factors other than the program differences discussed here may be involved. However, the attrition data do indicate that IERW training performance of 175/40 students is equal to or better than that of the 180/20 students, and they suggest the 175/40 program is a more efficient program.

Proficiency Progression

The data and information presented under Objectives VI and VII show that proficiency progression and individualization concepts are workable in IERW in spite of some difficulties. As was noted, there is a potential problem related to the numbers of students reaching proficiency. Some of the implications of the time-to-proficiency findings have been explored, such as the appropriateness of the performance standards used and the stringency of the three (+) maneuver proficiency criterion.

The effect of changes in the three (+) criterion to two (+) or even one (+) have been noted. It is of some interest to note whether such criterion changes would have significant effect on the maneuver training sequence. Accordingly, the consistency of this order over classes was examined. The relationships of the three criterion levels were examined for the Night Phase data. The correlation of mean day to proficiency over maneuvers was +.92 for 3(+) vs. 2(+); that for 3(+) vs. 1(+) was +.85; while that for 2(+) vs 1(+) was +.85. Thus, it can be seen that there is considerable stability of the ordering by maneuver of mean days to maneuver proficiency, whether the criterion is 3(+), 2(+), or 1(+).

Such stability of pattern, along with that noted earlier under Objective VI, and the other aspects of the individualized, proficiency progression concept indicate its workability in the IERW context. However, full implementation of the concept would benefit from changes of the sort discussed under Objectives VI and VII.

Summary Conclusions

In summary of these three broad general technical objective areas, the following conclusions are drawn:

- The 175/40 IERW course is accomplishing its objectives.
- The 175/40 course is an improvement over the 180/20 course.

- Proficiency progression and individualized training can play an effective role in IERW training.

The preceding conclusions are, of course, subject to the many detailed findings and qualifications contained in this report, and there are areas where further changes and program refinement are desirable. However, overall, the 175/40 IERW program is an effective means of achieving Army aviation training goals, and it produces a graduate capable of effective performance in the unit setting.

# APPENDIX A

## CHRONOLOGICAL SUMMARY OF SIGNIFICANT EVENTS

# APPENDIX A

## CHRONOLOGICAL SUMMARY OF SIGNIFICANT EVENTS

This appendix presents a sequential listing of the significant events of the 175/40 IERW Evaluation. It begins with the initial briefing on the program proposal to TRADOC, and concludes with the forwarding of the final report and model to TRADOC.

## CHRONOLOGICAL SUMMARY OF SIGNIFICANT EVENTS

| | |
|---|---|
| 8 Jul 76 | TRADOC briefed on the 175/40 IERW program proposal. |
| 21 Jan 77 | TRADOC directs implementation of 175/40 IERW program. |
| 1 May 77 | POI submitted to TRADOC |
| 14 Jun 77 | First class of 175/40 IERW begins (77-35/36). |
| 18 Jan 78 | Last 180/20 class graduated (77-27/28). |
| 30 Jan 78 | DCDR tasks DES to evaluate the 175/40 IERW program (with support of ARI, DTD, DT, and Research Contractor). |
| 30 Jan 78 | USAAVNC evaluation team formed, DES proponent. |
| 1 Feb 78 | Preliminary planning for the evaluation begins. |
| 3 Mar 78 | DCDR approves 175/40 IERW evaluation objectives. |
| 9 Mar 78 | First 175/40 IERW class graduated (77-35/36). |
| 5 Apr 78 | The USAAVNC Evaluation Team prepares detailed evaluation plan, and begins work on Phase I, Evaluation Planning. |
| 24 Apr 78 | Preliminary flight line grade slips and resource forms. This is to test data. Actual evaluation to begin 24 May 78. |
| 26 Apr 78 | Preparation of Utility and Aeroscout aviator task lists. |
| 27 Apr 78 | Prepare collection of resource information for contractor. |
| 27 Apr 78 | Specifications for field questionnaires. |
| 15 May 78 | USAAVNC Evaluation Team completes Phase I of evaluation. |
| 16 May 78 | Initial meeting with Research Contractor. |
| 19 May 78 | Research Contractor begins work on Phase II, Data Collection. |
| 24 May 78 | Collection of grade slip and resource data begins. |

| | |
|---|---|
| 5 Jun 78 | Field data collection begins |
| 10 Jul 78 | Work begins on Phase III, Data Analysis |
| 9 Aug 78 | Grade slip maneuver data collection completed |
| 18 Aug 78 | Cost/resource data collection completed |
| 30 Aug 78 | First In-Progress Review in ARI conference room |
| 30 Aug 78 | Institutional data collection begins |
| 18 Sep 78 | Institutional data collection completed |
| 16 Oct 78 | Field data collection completed |
| 16 Oct 78 | Evaluation Team completes Phase II, Data Collection |
| 23 Oct 78 | Work begins on Phase IV, Reporting and Evaluation Model |
| 10 Nov 78 | Data processing of institutional 29 stionnaires completed |
| 29 Nov 78 | Second In-Progress Review in USAAVNC Conference Room |
| 15 Dec 78 | Data processing of the field questionnaires completed |
| 2 Jan 79 | Report writing commences |
| 19 Mar 79 | Draft final report completed by Research Contractor. |
| 9 Apr 79 | Pre-IPR |
| 11 Apr 79 | Third In-Progress Review in the USAAVNC Conference Room |
| 11 Apr 79 | Review draft final report |
| 24 Apr 79 | Review of draft final report completed |
| 27 Apr 79 | Draft final report comments given to contractor |
| 19 May 79 | Final report completed. (Executive Summary, Report, and Model) |
| 15 Jun 79 | Final report forwarded to TRADOC |

# APPENDIX B

## DISTRIBUTION OF FIELD SURVEY RESPONDENTS

## APPENDIX B

## DISTRIBUTION OF FIELD SURVEY RESPONDENTS

This appendix presents a listing of the total number of returned field questionnaires utilized in the 175/40 IERW Evaluation. The top row of the tabulation presents the type of respondent answering the questionnaire. The first column lists the locations of the respondent. The seven general locations which were visited by team members are indicated with an asterisk (*). The other locations received the questionnaires through the mail.

The first four numerical columns list the types of supervisors questioned about the groups of graduates and the numbers responding by location. Following the supervisors are three Instructor Pilot columns. The IPs were classified by the type of program from which the aviator rated was graduated. An individual IP could be counted in more than one column if he rated more than one program graduate. The next three columns list the numbers of graduates from each program and their various locations. The final column lists the total number of returned questionnaires from each location, regardless of type. Each column or grouping of columns is totaled at the bottom of the table.

DISTRIBUTION OF FIELD SURVEY RESPONDENTS

| Location | Supervisor Returns: Plt Ldrs | Co Opns | Co Cdrs | Bt Ops & Cdrs | Instructor Pilot Returns: 180/20 | 175/40 Utility | 175/40 Aeroscout | Graduate Returns: 180/20 | 175/40 Utility | 175/40 Aeroscout | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benning | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 3 |
| Bliss | 4 | 2 | 1 | 0 | 0 | 6 | 1 | 0 | 6 | 1 | 21 |
| Bragg * | 11 | 5 | 4 | 1 | 4 | 7 | 3 | 8 | 12 | 8 | 63 |
| Cairns * | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 7 |
| Campbell * | 20 | 13 | 8 | 0 | 11 | 17 | 8 | 22 | 29 | 14 | 142 |
| Canal Zone | 6 | 0 | 2 | 0 | 2 | 5 | 2 | 1 | 1 | 3 | 22 |
| Carson | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 6 |
| Germany Area* | 11 | 0 | 5 | 3 | 15 | 1 | 1 | 17 | 5 | 3 | 61 |
| Hood* | 22 | 2 | 4 | 0 | 16 | 5 | 4 | 23 | 11 | 12 | 99 |
| Hunter/Stewart | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 1 | 10 |
| Knox | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 |
| Korea Area * | 11 | 2 | 1 | 0 | 3 | 37 | 6 | 8 | 19 | 10 | 97 |
| Ord | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 5 |
| Richardson/ Wainwright | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 10 |
| Riley | 8 | 2 | 4 | 1 | 11 | 6 | 0 | 7 | 1 | 0 | 40 |
| Wheeler/ Schofield * | 0 | 0 | 0 | 0 | 4 | 11 | 2 | 8 | 10 | 2 | 37 |
| Unknown[a] | 16 | 2 | 4 | 0 | 4 | 5 | 3 | 1 | 3 | 0 | 38 |
| TOTALS | 123 | 32 | 33 | 5 | 77 | 102 | 34 | 100 | 100 | 58 | |
| | | 193 | | | | 213 | | | 258 | 664 | |

[a]Unknown locations resulted when the site code on respondent's questionnaire was: (a) not marked, (b) marked in more than one location, or (c) marked in a nonexisting location.

# APPENDIX C

## GRADUATE AND INSTRUCTOR PILOT FIELD QUESTIONNAIRES

## APPENDIX C

## GRADUATE AND INSTRUCTOR PILOT FIELD QUESTIONNAIRES

This appendix depicts the questionnaires administered to 180/20 and 175/40 program graduates at various field locations. Each questionnaire consisted of three general sections. Section I requested response to various biographical, demographic, and informational questions. Section II requested response to several specific questions for each of a number of specific critical aviator tasks. Section III requested information concerning areas in need of additional or reduced training. Responses to Sections I and II were in multiple-choice format suitable for computer processing. Responses to Section III were in narrative form.

SECTION I

Graduate Form - Some 18 questions were asked the graduate in Section I. Topics covered included:

a. Type of R/W aircraft flown in primary assignment

b. Amout of flying time since IERW graduation (6 questions)

c. Aviator Readiness Level (ARL)

d. Job satisfaction (4 questions)

e. Education

f. Age

g. MOS

h. Time in grade

i. Time in service

j. Time between graduation and unit arrival.

Instructor Pilot Form. The unit instructor pilot was asked 14 questions in Section I. Topics covered included:

a. Type of R/W aircraft in which instructing

b. IP flight time and qualifications (9 questions)

c. Time in unit

d. Current Army aviator rating

e. Characteristics of unit training program (2 questions)

The instructor pilot was also asked to provide his assessment of the importance of 12 selected tasks to the conduct of his unit's missions and to indicate the level of proficiency required in those tasks. In addition, he was asked his opinion of the manner in which the dual-track IERW program will fit his unit's needs.

SECTION II

Graduate Form - The graduate was asked to respond to four questions for each of 140 critical aviator tasks (the task listing follows). The four questions and their multiple-choice response alternatives were:

A. ADEQUACY OF TRAINING

"How adequate was the training you received in this task at Fort Rucker in preparing you to perform this task in your present unit?"

1. Substantially Undertrained (i.e., was not trained at all at Rucker or needed much more training to meet unit needs)

2. Slightly Undertrained (i.e., needed a little more training at Fort Rucker to meet unit needs)

3. Adequately Trained (i.e., received about the right amount of training for unit needs)

4. Slightly Overtrained (i.e., received a little more training than required)

5. Substantially Overtrained (i.e., received considerably more training than required)

B. CURRENT PERFORMANCE LEVEL

"How do you rate your current level of proficiency in this task?"

1. Inadequate (i.e., unable to perform task at this time, even with assistance)

2. Marginally Adequate (i.e., can perform task, but only with considerable assistance or supervision)

3. Adequate (i.e., can perform task with only minimal assistance or supervision)

4. Competent (i.e., can perform without assistance or supervision)

5. Highly Competent (i.e., can perform task readily without assistance or supervision; could assist others in it)

C. TIMES PERFORMED: INDIVIDUAL TRAINING

"How many times have you performed this task as an individual training requirement since reporting to your present unit?"

1. None (zero times)

2. 1-5 times

3. 6-10 times

4. 11-15 times

5. More than 15 times

D. TIMES PERFORMED: MISSION TRAINING

"How many times have you performed this task in operational/ tactical mission training or operationally since reporting to your present unit?"

1. None (zero times)

2. 1-5 times

3. 6-10 times

4. 11-15 times

5. More than 15 times

Instructor Pilot Form. The unit instructor pilot was asked to respond to three questions for each of 95 critical aviator tasks selected from the larger graduate listing (the 95 instructor pilot tasks are identified by an asterisk (*) in the task listing that follows).

The instructor pilot answered the three questions for each task for each of the 175/40 or 180/20 program graduates in the evaluation samples for whom that instructor was providing unit instruction. The three questions and their multiple-choice response alternatives were:

A. INITIAL PERFORMANCE LEVEL

"How well did the USAAVNC graduate you are now evaluating perform this task upon his arrival at your unit?"

1. Inadequate (i.e., unable to perform task)

2. Marginally Adequate (i.e., can perform task, but only with considerable assistance or supervision)

3. Adequate (i.e., can perform task with only minimal assistance or supervision)

4. Competent (i.e., can perform without assistance or supervision)

5. Highly Competent (i.e., can perform task readily without assistance or supervision; could assist others in it)

B. CURRENT PERFORMANCE LEVEL

"How do you rate that some graduate's current level of proficiency in performing this task?"

1. Inadequate (i.e., unable to perform task)

2. Marginally Adequate (i.e., can perform task, but only with considerable assistance or supervision)

3. Adequate (i.e., can perform task with only minimal assistance or supervision)

4. Competent (i.e., can perform without assistance or supervision)

5. Highly Competent (i.e., can perform task readily without assistance or supervision; could assist others in it)

C. TYPE OF CURRENT TRAINING

"Which of the following best describes the type of training that that graduate is now receiving in this task?"

1. No unit training program.

2. Training occurs incidental to mission flights.

3. Under IP control, but not formally structured.

4. Like 5, but not aimed at this specific task.

5. Formally structured; under IP control; aimed at this specific task.

## AVIATOR TASK LISTING

This listing contains the 140 critical aviator tasks used on the Graduate questionnaire. The 95 tasks used on the Unit Instructor Pilot questionnaire are indicated by an asterisk (*). The tasks are grouped as they appeared on the questionnaires.

### PREFLIGHT PLANNING

1. Perform pre-mission planning (weather, NOTAMs, maps, etc.)
2. Use required publications
3. Perform aircraft mission briefing
4. Plan a VFR flight
5. Plan an IFR flight
6. Perform weight and balance computations
7. File a flight plan

### PREFLIGHT CHECKS

8. Perform preflight inspection
9. Perform engine runup procedures

### TAKEOFF/HOVER

10. Perform aircraft hover/taxi
11. Perform power check
12. Perform normal takeoff from the ground
13. Perform normal takeoff from hover
14. Perform normal takeoff
15. Perform confined area takeoff
16. Perform maximum performance takeoff
17. Perform basic flight maneuvers

### APPROACHES

18. Perform normal approach to hover
19. Perform normal approach to ground
20. Perform shallow approach to a running landing
21. Perform confined area approach and landing
22. Perform pinnacle approach and landing
23. Perform steep approach and landing

PERFORM INSTRUMENT FLIGHT

*24. Perform instrument takeoff

*25. Perform ADR approach

26. Perform VOR approach

27. Perform ILS approach

*28. Perform GCA approach

29. Perform VOR navigation/ tracking

*30. Perform ADF navigation/ tracking

*31. Perform FM homing procedures

32. Perform holding procedures

33. Perform unusual attitude recovery

34. Perform procedures for lost communications

35. Communicate as required with appropriate ground agencies while on IFR/VFR flight plan

36. Perform vertical (inadvertent IMC) helicopter IFR recovery procedures

EMERGENCY PROCEDURES

*37. Perform emergency procedures for engine failure

38. Perform emergency procedures for engine fire

39. Perform emergency procedures for hydraulic system malfunction

*40. Perform emergency procedures for governor control malfunction

*41. Perform emergency procedures for anti-torque malfunction

42. React to or perform emergency procedures for illuminated caution light

AUTOROTATIONS

43. Perform autorotation from a hover (day)

*44. Perform autorotation from a hover (night)

45. Perform low level autorotation (day)

*46. Perform low level autorotation (night)

*47. Perform standard autorotation (day)

*48. Perform standard autorotation (night)

49. Perform autorotation with turn (day)

TACTICS

*50. Plan a daylight terrain flight mission

*51. Conduct coordination with supported unit(s)

*52. Perform low level flight (day)

*53. Perform contour flight (day)

*54. Perform NOE flight (day)

55. Perform aerial radio relay

56. Transmit spot report

*57. Perform quick stop

*58. Conduct tactical flight for multi-aircraft operations

*59. Perform evasive maneuvers

*60. Plan and perform tactical instrument flight

*61. Plan and perform tactical instrument approaches

*62. Utilize map for navigation

*63. Operate radar warning receiver (RWR) AN/APR-39 in a threat environment

*64. Operate SIF/IFF equipment

65. Identify enemy attack

66. Identify major allied equipment

67. Identify Soviet and US individual weapons

*68. Perform ECCM

69. Perform hoist operations

70. Prepare for night flight/operations

71. Perform CEOI

72. Call for/adjust artillery/mortar fire

*73. Perform FARRP operations

*74. Perform route reconnaissance

*75. Perform area reconnaissance

*76. Perform FM radio homing

*77. Perform helicopter masking and unmasking

NBC

*78. Use M-24 protective mask during flight (terrain flight)

AFTER MISSION COMPLETION

79. Complete after action report

80. Submit reports and/or debriefings, oral or written, to the Operations (or S-2) Officer

SURVIVAL, EVASION, RESISTANCE, AND ESCAPE

81. Demonstrate knowledge of Survival, Evasion, Resistance, and Escape

82. Operate emergency radio

83. Demonstrate use of aircraft survivability equipment

NIGHT

*84. Perform approach to minimum lighted area

*85. Perform visual glide slope approach and landing

*86. Perform low level flight

*87. Perform contour flight

*88. Perform NOE flight

*89. Perform night operations

NIGHT HAWK MANEUVERS (NH)

*90. Perform takeoff to a hover (NH)

*91. Perform landing to a hover (NH)

*92. Perform hovering turns (NH)

*93. Perform sideward & rearward hovering flight (NH)

*94. Perform night takeoff

*95. Perform night approach

*96. Perform night shallow approach (running landing)

*97. Perform night simulated hydraulic failure

*98. Perform night confined area operations

*99. Perform night pinnacle and ridgeline operations

NIGHT VISION GOGGLE MANEUVERS (NVG)

*100 Perform NVG preflight check

*101 Perform takeoff to hover (NVG)

*102 Perform landing from hover (NVG)

*103 Perform hovering (NVG)

*104 Perform NVG airwork/traffic pattern

*105. Perform NVG takeoff

*106. Perform NVG approach

*107. Perform NVG autorotation low level

*108. Perform NVG failure

*109. Perform NVG IMC procedures

*110. Perform NVG terrain flight operations

*111. Perform NVG terrain flight navigation

*112. Perform NVG terrain flight takeoff and approach

*113. Perform NVG hovering in- and out-of-ground effect

*114. Perform NVG NOE quick stop/deceleration

UTILITY TASKS

*115. Perform external load missions (day)

*116. Perform internal load missions (day)

*117. Perform internal load missions (night)

*118. Perform rappelling missions

*119. Perform pinnacle takeoff

*120. Perform formation takeoff

*121. Perform formation landing

*122. Perform external load emergency procedure

*123. Conduct an air movement (section or platoon level)

*124. Perform landing zone reconnaissance

AEROSCOUT TASKS

*125. Select/recommend landing zone

*126. Select assembly areas

*127. Select/recommend holding areas

*128. Select terrain flight routes for air elements

*129. Select attack positions for attack helicopters

*130. Perform screening mission

*131. Designate attack helicopter targets

*132. Provide security during attack

*133. Perform tactical movement techniques

*134. Call and control TAC airstrikes

*135. Transmit information using visual signaling techniques

*136. Report reconnaissance data used for classification of roads and bridges

*137. Perform zone reconnaissance

*138. Select/recommend entry/ exit routes

*139. Identify primary front line units by type and number of personnel or equipment

*140. Detect enemy camouflage and concealment

SECTION III

In Section III of the questionnaire, both graduates and IPs responded in narrative form. Both groups were to identify and comment on the following: (a) five tasks most in need of additional emphasis in IERW training; (b) five tasks that could best be eliminated from IERW; and (c) any additional tasks that should be added to IERW.

The unit IP was asked three additional questions. One dealt with the aspects of threat doctrine for which IERW graduates were best and least well prepared. The second requested the two areas that required the most training for new graduates, while the third asked for identification of tasks that cannot be performed because of local unit constraints or restrictions.

A request for any additional comments the respondent might care to make completed the questionnaire.

# APPENDIX D

## UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

# APPENDIX D

## UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

This appendix lists the frequencies (f) and percentages (%) of responses, by response category (Less Than Adequate, Adequate, and Competent), from the IP's rating for each type program graduate on initial performance of 95 critical aviator tasks. The "Less Than Adequate" columns represent a summation of both the "Inadequate" and "Marginally Adequate" categories of responses from the Instructor Pilot Field Questionnaire, Section II, Question 1, while the "Competent" columns represent a summation of the "Competent" and "Highly Competent" categories.

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BASIC TASKS** | | | | | | | | | | | | |
| Perform confined area takeoff | 10 | 14 | 32 | 46 | 28 | 40 | 19 | 16 | 46 | 38 | 56 | 46 |
| Perform maximum performance takeoff | 12 | 17 | 31 | 43 | 29 | 40 | 15 | 11 | 54 | 43 | 58 | 46 |
| Perform basic flight maneuvers | 2 | 3 | 31 | 42 | 40 | 55 | 12 | 10 | 53 | 42 | 61 | 48 |
| Perform confined area approach and landing | 11 | 16 | 35 | 50 | 24 | 34 | 20 | 16 | 52 | 43 | 49 | 41 |
| Perform pinnacle approach and landing | 12 | 20 | 34 | 56 | 15 | 24 | 28 | 26 | 53 | 49 | 27 | 25 |
| Perform steep approach and landing | 12 | 17 | 33 | 46 | 26 | 37 | 15 | 13 | 46 | 37 | 62 | 50 |
| Perform emergency procedures for engine failure | 13 | 19 | 30 | 44 | 25 | 37 | 17 | 14 | 66 | 54 | 39 | 32 |
| Perform emergency procedures for governor control malfunction | 15 | 25 | 35 | 57 | 11 | 18 | 22 | 21 | 58 | 56 | 24 | 23 |
| Perform emergency procedures for antitorque malfunction | 35 | 52 | 24 | 36 | 8 | 12 | 61 | 50 | 45 | 36 | 17 | 14 |
| Perform low level autorotations | 14 | 20 | 40 | 59 | 14 | 21 | 23 | 19 | 57 | 48 | 39 | 33 |
| **INSTRUMENT TASKS** | | | | | | | | | | | | |
| Perform instrument takeoff | 10 | 17 | 30 | 52 | 18 | 31 | 12 | 15 | 37 | 46 | 31 | 39 |
| Perform ADF approach | 10 | 17 | 32 | 53 | 18 | 30 | 5 | 6 | 46 | 53 | 35 | 41 |
| Perform GCA approach | 6 | 9 | 36 | 54 | 25 | 37 | 6 | 7 | 28 | 30 | 59 | 63 |
| Perform ADF navigation/tracking | 10 | 17 | 29 | 50 | 19 | 33 | 8 | 9 | 36 | 42 | 42 | 49 |
| Perform FM homing procedures | 17 | 37 | 18 | 39 | 11 | 24 | 19 | 28 | 20 | 29 | 29 | 43 |

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TACTICAL TASKS** | | | | | | | | | | | | |
| Plan a daylight terrain flight mission | 18 | 28 | 30 | 46 | 17 | 26 | 20 | 19 | 48 | 45 | 38 | 36 |
| Conduct coordination with supported units | 29 | 48 | 21 | 34 | 11 | 18 | 25 | 31 | 41 | 51 | 14 | 18 |
| Perform low level flight | 8 | 11 | 30 | 42 | 34 | 47 | 7 | 6 | 48 | 43 | 57 | 51 |
| Perform contour flight | 9 | 13 | 31 | 44 | 30 | 43 | 7 | 7 | 49 | 45 | 51 | 48 |
| Perform NOE flight | 9 | 14 | 33 | 50 | 24 | 36 | 17 | 18 | 42 | 45 | 34 | 37 |
| Transmit Spot report | 11 | 17 | 39 | 58 | 17 | 25 | 15 | 14 | 50 | 49 | 38 | 37 |
| Conduct tactical flight for multiaircraft operations | 19 | 40 | 24 | 51 | 4 | 9 | 31 | 36 | 45 | 53 | 9 | 11 |
| Perform evasive maneuvers | 17 | 37 | 20 | 43 | 9 | 20 | 22 | 37 | 24 | 40 | 14 | 23 |
| Plan and perform tactical instrument flight | 19 | 35 | 26 | 48 | 9 | 17 | 12 | 20 | 40 | 66 | 9 | 14 |
| Plan and perform tactical instrument approaches | 16 | 30 | 26 | 49 | 11 | 21 | 13 | 23 | 36 | 63 | 8 | 14 |
| Utilize map for navigation | 16 | 22 | 24 | 33 | 32 | 45 | 24 | 20 | 55 | 47 | 39 | 33 |
| Operate radar warning receiver (RWR) AN/APR-39 in a threat environment | 9 | 60 | 6 | 40 | 0 | 0 | 13 | 56 | 2 | 9 | 8 | 35 |
| Operate SIF/IFF equipment | 9 | 29 | 17 | 55 | 5 | 16 | 12 | 26 | 13 | 28 | 21 | 46 |
| Perform ECCM | 11 | 46 | 11 | 46 | 2 | 8 | 14 | 43 | 13 | 39 | 6 | 18 |
| Perform FARRP operations | 7 | 15 | 24 | 51 | 16 | 34 | 14 | 16 | 37 | 43 | 35 | 41 |
| Perform route reconnaissance | 11 | 24 | 24 | 52 | 11 | 24 | 11 | 16 | 36 | 53 | 21 | 31 |
| Perform area reconnaissance | 13 | 27 | 26 | 53 | 10 | 20 | 12 | 17 | 37 | 51 | 23 | 32 |
| Perform FM homing | 8 | 17 | 29 | 60 | 11 | 23 | 10 | 14 | 39 | 56 | 21 | 30 |
| Perform helicopter masking and unmasking | 9 | 12 | 34 | 50 | 26 | 38 | 7 | 8 | 38 | 42 | 46 | 50 |

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TACTICAL TASKS cont'd** | | | | | | | | | | | | |
| Use M-24 protective mask during flight | 13 | 34 | 20 | 53 | 5 | 13 | 20 | 42 | 20 | 42 | 8 | 16 |
| **NIGHT TASKS** | | | | | | | | | | | | |
| Perform autorotations from a hover | 14 | 37 | 15 | 39 | 9 | 24 | 12 | 24 | 20 | 38 | 20 | 38 |
| Perform low level autorotations | 16 | 43 | 16 | 43 | 5 | 14 | 14 | 32 | 21 | 48 | 9 | 20 |
| Perform standard autorotations | 15 | 38 | 16 | 41 | 8 | 21 | 15 | 26 | 23 | 41 | 19 | 33 |
| Perform approach to minimum lighted area | 18 | 29 | 36 | 57 | 9 | 14 | 28 | 28 | 46 | 46 | 26 | 26 |
| Perform visual glide slope approach and landing | 7 | 19 | 24 | 63 | 7 | 18 | 14 | 27 | 26 | 51 | 11 | 22 |
| Perform low level flight | 7 | 12 | 30 | 53 | 20 | 35 | 11 | 12 | 38 | 43 | 40 | 45 |
| Perform contour flight | 8 | 16 | 27 | 54 | 15 | 30 | 11 | 15 | 31 | 44 | 29 | 41 |
| Perform NOE flight | 10 | 32 | 13 | 42 | 8 | 26 | 13 | 26 | 24 | 48 | 13 | 26 |
| Perform night operations | 13 | 22 | 34 | 58 | 12 | 20 | 17 | 17 | 57 | 55 | 29 | 28 |
| Perform takeoff to a hover (NH) | 8 | 25 | 15 | 45 | 10 | 30 | 7 | 13 | 21 | 39 | 26 | 48 |
| Perform landing to a hover (NH) | 8 | 22 | 17 | 47 | 11 | 31 | 9 | 17 | 17 | 33 | 26 | 50 |
| Perform hovering turns (NH) | 8 | 23 | 14 | 40 | 13 | 37 | 8 | 16 | 20 | 40 | 22 | 44 |
| Perform sideward and rearward hovering flight (NH) | 8 | 24 | 14 | 41 | 12 | 35 | 9 | 17 | 23 | 43 | 22 | 40 |
| Perform takeoff | 9 | 20 | 16 | 36 | 20 | 44 | 11 | 16 | 31 | 45 | 27 | 39 |
| Perform approach | 9 | 21 | 18 | 42 | 16 | 37 | 13 | 18 | 34 | 47 | 25 | 35 |
| Perform shallow approach to a running landing | 12 | 39 | 12 | 39 | 7 | 22 | 14 | 33 | 13 | 31 | 15 | 36 |

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| NIGHT TASKS cont'd | f | % | f | % | f | % | f | % | f | % | f | % |
| Perform simulated hydraulic failure | 14 | 46 | 11 | 35 | 6 | 19 | 15 | 33 | 13 | 29 | 17 | 38 |
| Perform confined area operations | 12 | 35 | 16 | 47 | 6 | 18 | 22 | 38 | 15 | 26 | 21 | 36 |
| Perform pinnacle and ridgeline operations | 7 | 24 | 16 | 53 | 7 | 23 | 18 | 45 | 15 | 37 | 7 | 18 |
| NIGHT VISION GOGGLE TASKS | | | | | | | | | | | | |
| Perform preflight check | 5 | 62 | 1 | 13 | 2 | 25 | 8 | 53 | 1 | 7 | 6 | 40 |
| Perform takeoff to hover | 5 | 56 | 1 | 11 | 3 | 33 | 9 | 69 | 0 | 0 | 4 | 31 |
| Perform landing from hover | 6 | 75 | 1 | 12 | 1 | 13 | 9 | 64 | 0 | 0 | 5 | 36 |
| Perform hovering | 5 | 72 | 1 | 14 | 1 | 14 | 8 | 61 | 1 | 8 | 4 | 31 |
| Perform airwork/traffic pattern | 5 | 62 | 2 | 25 | 1 | 13 | 8 | 61 | 1 | 8 | 4 | 31 |
| Perform takeoff | 5 | 56 | 1 | 11 | 3 | 33 | 8 | 47 | 1 | 6 | 8 | 47 |
| Perform approach | 5 | 56 | 1 | 11 | 3 | 33 | 8 | 61 | 1 | 8 | 4 | 31 |
| Perform low level autorotation | 5 | 83 | 1 | 17 | 0 | 0 | 8 | 73 | 1 | 9 | 2 | 18 |
| Perform NVG failure | 6 | 67 | 1 | 11 | 2 | 22 | 8 | 47 | 1 | 6 | 8 | 47 |
| Perform IMC procedure | 5 | 83 | 1 | 17 | 0 | 0 | 8 | 44 | 1 | 6 | 9 | 50 |
| Perform terrain flight operations | 5 | 62 | 2 | 25 | 1 | 13 | 7 | 47 | 1 | 6 | 7 | 47 |
| Perform terrain flight navigation | 6 | 75 | 1 | 12 | 1 | 13 | 8 | 47 | 1 | 6 | 8 | 47 |
| Perform terrain flight takeoff and approach | 5 | 62 | 2 | 25 | 1 | 13 | 8 | 53 | 1 | 7 | 6 | 40 |
| Perform hovering in- and out-of-ground effect | 5 | 56 | 2 | 22 | 2 | 22 | 9 | 43 | 0 | 0 | 12 | 57 |
| Perform NOE quick stop/ deceleration | 5 | 62 | 2 | 25 | 1 | 13 | 8 | 57 | 2 | 14 | 4 | 29 |

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UTILITY TASKS** | | | | | | | | | | | | |
| | (IPs rating Utility aviators) | | | | | | (IPs rating Utility Track aviators) | | | | | |
| Perform external load missions (day) | 6 | 26 | 14 | 61 | 3 | 13 | 9 | 24 | 22 | 58 | 7 | 18 |
| Perform internal load missions (day) | 6 | 14 | 30 | 70 | 7 | 16 | 9 | 11 | 47 | 56 | 28 | 33 |
| Perform internal load missions (night) | 10 | 26 | 22 | 58 | 6 | 16 | 9 | 15 | 36 | 60 | 15 | 25 |
| Perform rappelling missions | 13 | 61 | 6 | 29 | 2 | 10 | 13 | 42 | 14 | 45 | 4 | 13 |
| Perform pinnacle takeoff | 7 | 19 | 19 | 51 | 11 | 30 | 9 | 13 | 43 | 61 | 18 | 26 |
| Perform formation takeoff | 9 | 27 | 17 | 52 | 7 | 21 | 18 | 26 | 38 | 56 | 12 | 18 |
| Perform formation landing | 10 | 28 | 17 | 49 | 8 | 23 | 21 | 30 | 37 | 54 | 11 | 16 |
| Perform external load emergency procedures | 8 | 33 | 11 | 46 | 5 | 21 | 13 | 37 | 20 | 57 | 2 | 6 |
| Conduct an air movement | 11 | 32 | 18 | 51 | 6 | 17 | 18 | 38 | 24 | 51 | 5 | 11 |
| Perform landing zone reconnaissance | 10 | 26 | 19 | 50 | 9 | 24 | 10 | 17 | 34 | 57 | 16 | 26 |
| **AEROSCOUT TASKS** | (IPs rating transitioned Aeroscout aviators) | | | | | | (IPs rating Aeroscout Track aviators) | | | | | |
| Select/recommend landing zone | 1 | 10 | 8 | 80 | 1 | 10 | 5 | 25 | 7 | 35 | 8 | 40 |
| Select assembly areas | 1 | 11 | 7 | 78 | 1 | 11 | 4 | 23 | 8 | 44 | 6 | 33 |

UNIT IP RATINGS OF GRADUATE INITIAL PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE INITIAL PERFORMANCE LEVEL | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | | 175/40 | | |
| | <Adequate | Adequate | Competent | <Adequate | Adequate | Competent |
| **AEROSCOUT TASKS cont'd** | f % | f % | f % | f % | f % | f % |
| Select/recommend holding areas | 1 12 | 6 75 | 1 13 | 5 28 | 6 33 | 7 39 |
| Select terrain flight routes for air elements | 0 0 | 7 87 | 1 13 | 5 23 | 7 32 | 10 45 |
| Select attack positions for attack helicopters | 2 28 | 3 44 | 2 28 | 9 43 | 5 24 | 7 33 |
| Perform screening mission | 2 33 | 2 33 | 2 33 | 8 44 | 4 23 | 6 33 |
| Designate attack helicopter targets | 2 33 | 3 50 | 1 17 | 8 38 | 5 24 | 8 38 |
| Provide security during attack | 1 20 | 3 60 | 1 20 | 7 39 | 5 28 | 6 33 |
| Perform tactical movement techniques | 2 29 | 4 57 | 1 14 | 7 33 | 6 29 | 8 38 |
| Call and control TAC airstrikes | 3 50 | 3 50 | 0 0 | 8 62 | 3 23 | 2 15 |
| Transmit information using visual signaling techniques | 2 67 | 1 33 | 0 0 | 6 46 | 4 31 | 3 23 |
| Report reconnaissance data used for classification of roads and bridges | 1 33 | 2 67 | 0 0 | 5 36 | 3 21 | 6 43 |
| Perform zone reconnaissance | 1 16 | 4 67 | 1 17 | 6 33 | 5 28 | 7 39 |
| Select/recommend entry/exit routes | 1 20 | 3 60 | 1 20 | 4 21 | 9 47 | 6 32 |
| Identify primary front line units by type and number of personnel and equipment | 3 60 | 2 40 | 0 0 | 6 43 | 6 43 | 2 14 |
| Detect enemy camouflage and concealment | 2 50 | 2 50 | 0 0 | 8 50 | 5 31 | 3 19 |

# APPENDIX E

## UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

## APPENDIX E

## UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

This appendix lists the frequencies (f) and percentages (%) of responses, by response category (Less Than Adequate, Adequate Competent), from the IP's rating for each type program graduate on current performance of 95 critical aviator tasks. The "Less Than Adequate" columns represent a summation of both the "Inadequate" and "Marginally Adequate" categories of responses from the Instructor Pilot Field Questionnaire, Section II, Question 2, while the "Competent" columns represent a summation of the "Competent" and "Highly Competent" categories.

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| **BASIC TASKS** | f | % | f | % | f | % | f | % | f | % | f | % |
| Perform confined area takeoff | 0 | 0 | 16 | 23 | 54 | 77 | 4 | 3 | 29 | 25 | 86 | 72 |
| Perform maximum performance takeoff | 1 | 1 | 16 | 22 | 56 | 77 | 2 | 2 | 35 | 28 | 88 | 70 |
| Perform basic flight maneuvers | 0 | 0 | 13 | 18 | 60 | 82 | 3 | 2 | 40 | 32 | 85 | 66 |
| Perform confined area approach and landing | 1 | 1 | 18 | 26 | 51 | 73 | 6 | 5 | 32 | 26 | 84 | 69 |
| Perform pinnacle approach and landing | 3 | 5 | 22 | 35 | 38 | 60 | 6 | 5 | 34 | 32 | 67 | 63 |
| Perform steep approach and landing | 3 | 4 | 16 | 23 | 51 | 73 | 5 | 4 | 28 | 24 | 86 | 72 |
| Perform emergency procedures for engine failure | 3 | 4 | 19 | 29 | 44 | 67 | 3 | 3 | 36 | 30 | 80 | 67 |
| Perform emergency procedures for governor control malfunction | 4 | 6 | 22 | 37 | 34 | 57 | 5 | 5 | 36 | 35 | 61 | 60 |
| Perform emergency procedures for antitorque malfunction | 8 | 12 | 25 | 38 | 33 | 50 | 14 | 12 | 48 | 39 | 60 | 49 |
| Perform low level autorotations | 4 | 6 | 22 | 33 | 41 | 61 | 4 | 3 | 30 | 26 | 83 | 71 |
| **INSTRUMENT TASKS** | | | | | | | | | | | | |
| Perform instrument takeoff | 2 | 3 | 20 | 35 | 36 | 62 | 4 | 5 | 22 | 29 | 50 | 66 |
| Perform ADF approach | 1 | 2 | 22 | 37 | 36 | 61 | 4 | 5 | 22 | 28 | 54 | 67 |
| Perform GCA approach | 0 | 0 | 20 | 31 | 45 | 69 | 1 | 1 | 20 | 22 | 69 | 77 |
| Perform ADF navigation/tracking | 0 | 0 | 21 | 37 | 36 | 63 | 3 | 4 | 20 | 25 | 58 | 71 |
| Perform FM homing procedures | 4 | 9 | 18 | 39 | 24 | 52 | 7 | 11 | 19 | 31 | 36 | 58 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| TACTICAL TASKS | f | % | f | % | f | % | f | % | f | % | f | % |
| Plan a daylight terrain flight mission | 2 | 3 | 20 | 31 | 43 | 66 | 9 | 8 | 29 | 29 | 63 | 63 |
| Conduct coordination with supported units | 11 | 18 | 14 | 23 | 37 | 59 | 13 | 17 | 26 | 33 | 39 | 50 |
| Perform low level flight | 1 | 1 | 17 | 24 | 53 | 75 | 2 | 2 | 23 | 20 | 88 | 78 |
| Perform contour flight | 1 | 1 | 18 | 26 | 51 | 73 | 2 | 2 | 22 | 20 | 85 | 78 |
| Perform NOE flight | 1 | 2 | 18 | 27 | 47 | 71 | 6 | 6 | 25 | 27 | 61 | 67 |
| Perform quick stop | 1 | 2 | 23 | 34 | 42 | 64 | 3 | 3 | 32 | 32 | 64 | 65 |
| Conduct tactical flight for multiaircraft operations | 3 | 6 | 21 | 46 | 22 | 48 | 16 | 20 | 27 | 34 | 37 | 46 |
| Perform evasive maneuvers | 8 | 18 | 16 | 36 | 21 | 46 | 15 | 27 | 18 | 32 | 23 | 41 |
| Plan and perform tactical instrument flight | 8 | 14 | 23 | 41 | 25 | 45 | 5 | 9 | 31 | 55 | 20 | 36 |
| Plan and perform tactical instrument approaches | 4 | 8 | 24 | 45 | 25 | 47 | 8 | 14 | 23 | 41 | 25 | 45 |
| Utilize map for navigation | 2 | 3 | 21 | 29 | 50 | 68 | 6 | 5 | 33 | 28 | 81 | 67 |
| Operate radar warning receiver (RWR) AN/APR-39 in a threat environment | 5 | 33 | 8 | 52 | 2 | 13 | 11 | 79 | 2 | 14 | 1 | 7 |
| Operate SIF/IFF equipment | 5 | 16 | 16 | 50 | 11 | 34 | 10 | 24 | 6 | 14 | 26 | 62 |
| Perform ECCM | 4 | 16 | 11 | 44 | 10 | 40 | 10 | 33 | 8 | 27 | 12 | 40 |
| Perform FARRP operations | 1 | 2 | 13 | 27 | 34 | 71 | 2 | 3 | 16 | 19 | 62 | 78 |
| Perform route reconnaissance | 3 | 7 | 19 | 41 | 24 | 52 | 6 | 9 | 15 | 24 | 42 | 67 |
| Perform area reconnaissance | 3 | 6 | 18 | 37 | 28 | 57 | 7 | 10 | 13 | 19 | 49 | 71 |
| Perform FM homing | 2 | 4 | 24 | 51 | 21 | 45 | 6 | 9 | 21 | 32 | 39 | 59 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TACTICAL TASKS cont'd** | | | | | | | | | | | | |
| Perform helicopter masking and unmasking | 1 | 1 | 17 | 26 | 49 | 73 | 3 | 3 | 17 | 18 | 72 | 79 |
| Use M-24 protective mask during flight | 5 | 13 | 18 | 46 | 16 | 41 | 8 | 18 | 20 | 44 | 17 | 38 |
| **NIGHT TASKS** | | | | | | | | | | | | |
| Perform autorotations from a hover | 3 | 8 | 12 | 32 | 22 | 60 | 5 | 11 | 12 | 26 | 29 | 63 |
| Perform low level autorotations | 3 | 8 | 17 | 46 | 17 | 46 | 5 | 13 | 16 | 40 | 19 | 48 |
| Perform standard autorotations | 4 | 10 | 17 | 44 | 18 | 46 | 3 | 7 | 16 | 33 | 29 | 60 |
| Perform approach to minimum lighted area | 2 | 3 | 25 | 41 | 34 | 56 | 5 | 5 | 29 | 30 | 62 | 65 |
| Perform visual glide slope approach and landing | 1 | 3 | 13 | 35 | 23 | 62 | 5 | 10 | 17 | 35 | 27 | 55 |
| Perform low level flight | 1 | 2 | 19 | 35 | 35 | 63 | 6 | 7 | 12 | 14 | 68 | 79 |
| Perform contour flight | 2 | 4 | 17 | 35 | 30 | 61 | 5 | 7 | 12 | 17 | 54 | 76 |
| Perform NOE flight | 4 | 13 | 10 | 32 | 17 | 55 | 8 | 16 | 11 | 22 | 31 | 62 |
| Perform night operations | 4 | 7 | 22 | 36 | 35 | 57 | 7 | 7 | 37 | 38 | 54 | 55 |
| Perform takeoff to a hover (NH) | 3 | 9 | 10 | 32 | 19 | 59 | 6 | 13 | 3 | 7 | 37 | 80 |
| Perform landing to a hover (NH) | 3 | 9 | 10 | 29 | 21 | 62 | 7 | 15 | 5 | 10 | 36 | 75 |
| Perform hovering turns (NH) | 3 | 9 | 9 | 26 | 22 | 65 | 7 | 14 | 6 | 12 | 37 | 74 |
| Perform sideward and rearward hovering flight (NH) | 3 | 9 | 8 | 24 | 22 | 67 | 7 | 14 | 5 | 11 | 35 | 75 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NIGHT TASKS cont'd | | | | | | | | | | | | |
| Perform takeoff | 2 | 4 | 12 | 26 | 32 | 70 | 7 | 10 | 13 | 19 | 49 | 71 |
| Perform approach | 3 | 6 | 12 | 26 | 31 | 68 | 7 | 10 | 17 | 24 | 46 | 66 |
| Perform shallow approach to a running landing | 5 | 16 | 8 | 25 | 19 | 59 | 7 | 20 | 8 | 23 | 20 | 57 |
| Perform simulated hydraulic failure | 5 | 17 | 11 | 35 | 15 | 48 | 7 | 16 | 8 | 18 | 29 | 66 |
| Perform confined area operations | 4 | 12 | 11 | 32 | 19 | 56 | 9 | 17 | 13 | 24 | 32 | 59 |
| Perform pinnacle and ridgeline operations | 3 | 11 | 9 | 32 | 16 | 57 | 9 | 24 | 7 | 18 | 22 | 58 |
| NIGHT VISION GOGGLE TASKS | | | | | | | | | | | | |
| Perform preflight check | 5 | 71 | 2 | 29 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform takeoff to hover | 5 | 71 | 2 | 29 | 0 | 0 | 7 | 78 | 1 | 11 | 1 | 11 |
| Perform landing from hover | 5 | 71 | 2 | 29 | 0 | 0 | 7 | 78 | 1 | 11 | 1 | 11 |
| Perform hovering | 5 | 71 | 2 | 29 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform airwork/traffic pattern | 5 | 71 | 2 | 29 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform takeoff | 5 | 71 | 2 | 29 | 0 | 0 | 7 | 78 | 1 | 11 | 1 | 11 |
| Perform approach | 5 | 71 | 1 | 15 | 1 | 14 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform low level autorotation | 4 | 66 | 1 | 17 | 1 | 17 | 8 | 89 | 1 | 11 | 0 | 0 |
| Perform NVG failure | 5 | 71 | 2 | 29 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform IMC procedure | 5 | 71 | 2 | 29 | 0 | 0 | 9 | 82 | 1 | 9 | 1 | 9 |
| Perform terrain flight operations | 5 | 71 | 2 | 29 | 0 | 0 | 8 | 89 | 1 | 11 | 0 | 0 |
| Perform terrain flight navigation | 5 | 71 | 2 | 29 | 0 | 0 | 9 | 90 | 1 | 10 | 0 | 0 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NIGHT VISION GOGGLES cont'd | | | | | | | | | | | | |
| Perform terrain flight takeoff and approach | 5 | 83 | 1 | 17 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| Perform hovering in- and out-of ground effect | 5 | 83 | 1 | 17 | 0 | 0 | 7 | 78 | 1 | 11 | 1 | 11 |
| Perform NOE quick stop/ deceleration | 5 | 83 | 1 | 17 | 0 | 0 | 8 | 80 | 1 | 10 | 1 | 10 |
| UTILITY TASKS | (IPs rating Utility aviators) | | | | | | (IPs rating Utility Track aviators) | | | | | |
| Perform external load mission (day) | 2 | 9 | 9 | 39 | 12 | 52 | 4 | 11 | 8 | 23 | 23 | 66 |
| Perform internal load missions (day) | 1 | 2 | 14 | 32 | 29 | 66 | 1 | 1 | 19 | 22 | 66 | 77 |
| Perform internal load missions (night) | 2 | 5 | 13 | 33 | 24 | 62 | 3 | 5 | 15 | 25 | 42 | 70 |
| Perform rappelling missions | 7 | 39 | 4 | 22 | 7 | 39 | 6 | 25 | 5 | 21 | 13 | 54 |
| Perform pinnacle takeoff | 2 | 5 | 12 | 32 | 24 | 63 | 2 | 3 | 13 | 19 | 52 | 78 |
| Perform formation takeoff | 3 | 9 | 14 | 42 | 16 | 49 | 5 | 7 | 19 | 29 | 42 | 64 |
| Perform formation landing | 3 | 9 | 15 | 44 | 16 | 47 | 5 | 8 | 16 | 24 | 45 | 68 |
| Perform external load emergency procedures | 2 | 8 | 13 | 57 | 8 | 35 | 3 | 9 | 8 | 25 | 21 | 66 |
| Conduct an air movement | 5 | 15 | 14 | 40 | 16 | 45 | 6 | 13 | 14 | 31 | 25 | 56 |
| Perform landing zone reconnaissance | 4 | 11 | 16 | 43 | 17 | 46 | 5 | 9 | 14 | 25 | 37 | 66 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | | 175/40 | | |
| | <Adequate | Adequate | Competent | <Adequate | Adequate | Competent |
| **AEROSCOUT TASKS** | f % | f % | f % | f % | f % | f % |
| | (IPs rating transitioned Aeroscout aviators) | | | (IPs rating Aeroscout Track aviators) | | |
| Select/recommend landing zone | 0 0 | 6 55 | 5 45 | 3 16 | 5 26 | 11 58 |
| Select assembly areas | 0 0 | 5 50 | 5 50 | 2 14 | 5 33 | 8 53 |
| Select/recommend holding areas | 0 0 | 4 44 | 5 56 | 3 17 | 4 24 | 10 59 |
| Select terrain flight routes for air elements | 0 0 | 4 44 | 5 56 | 3 15 | 4 20 | 13 65 |
| Select attack positions for attack helicopters | 0 0 | 2 25 | 6 75 | 7 35 | 3 15 | 10 50 |
| Perform screening mission | 0 0 | 3 50 | 3 50 | 7 41 | 1 6 | 9 53 |
| Designate attack helicopter targets | 0 0 | 2 29 | 5 71 | 8 40 | 0 0 | 12 60 |
| Provide security during attack | 0 0 | 1 17 | 5 83 | 6 33 | 2 11 | 10 56 |
| Perform tactical movement techniques | 0 0 | 3 38 | 5 62 | 3 15 | 6 30 | 11 55 |
| Call and control TAC airstrikes | 2 29 | 0 0 | 5 71 | 6 50 | 3 25 | 3 25 |
| Transmit information using visual signaling techniques | 1 33 | 0 0 | 2 67 | 5 50 | 2 20 | 3 30 |
| Report reconnaissance data used for classification of roads and bridges | 1 33 | 0 0 | 2 67 | 3 25 | 4 33 | 5 42 |
| Perform zone reconnaissance | 0 0 | 2 29 | 5 71 | 4 22 | 1 6 | 13 72 |

UNIT IP RATINGS OF GRADUATE CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| **AEROSCOUT TASKS cont'd** | f | % | f | % | f | % | f | % | f | % | f | % |
| Select/recommend entry/exit routes | 1 | 17 | 0 | 0 | 5 | 83 | 3 | 17 | 4 | 22 | 11 | 61 |
| Identify primary front line units by type and number of personnel and equipment | 2 | 33 | 1 | 17 | 3 | 50 | 6 | 50 | 4 | 33 | 2 | 17 |
| Detect enemy camouflage and concealment | 1 | 20 | 1 | 20 | 3 | 60 | 7 | 50 | 3 | 21 | 4 | 29 |

# APPENDIX F

## IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

# APPENDIX F

## IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

This appendix lists the frequencies (f) and percentages (%) of responses (Less Than Adequate, Adequate, and Competent) from 180/20 and 175/40 program graduates' ratings of their current performance for each of 140 critical aviator tasks. The "Less Than Adequate" columns represent a summation of both the "Inadequate" and "Marginally Adequate" categories of responses from the Graduate Field Questionnaire, Section II, Question 2, while the "Competent" columns represent a summation of the "Competent" and "Highly Competent" categories.

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| BASIC TASKS | f | % | f | % | f | % | f | % | f | % | f | % |
| Perform premission planning | 6 | 6 | 28 | 30 | 60 | 64 | 15 | 10 | 59 | 39 | 76 | 51 |
| Use required publications | 4 | 4 | 32 | 34 | 57 | 62 | 14 | 9 | 74 | 49 | 63 | 42 |
| Perform aircraft mission briefing | 20 | 21 | 29 | 31 | 46 | 48 | 41 | 27 | 65 | 43 | 46 | 30 |
| Plan a VFR flight | 4 | 4 | 22 | 24 | 66 | 72 | 7 | 4 | 51 | 35 | 89 | 61 |
| Plan an IFR flight | 10 | 11 | 37 | 44 | 45 | 49 | 34 | 23 | 70 | 47 | 44 | 30 |
| Perform weight and balance computations | 21 | 22 | 36 | 39 | 36 | 39 | 64 | 43 | 50 | 34 | 35 | 23 |
| File a flight plan | 1 | 1 | 29 | 31 | 64 | 68 | 7 | 4 | 57 | 38 | 88 | 58 |
| Perform preflight inspection | 2 | 2 | 15 | 16 | 78 | 82 | 2 | 1 | 33 | 22 | 116 | 77 |
| Perform engine runup procedures | 1 | 1 | 10 | 11 | 84 | 88 | 3 | 2 | 31 | 20 | 118 | 78 |
| Perform aircraft hover/taxi | 1 | 1 | 12 | 13 | 81 | 86 | 1 | 1 | 23 | 15 | 126 | 84 |
| Perform power check | 3 | 4 | 21 | 22 | 70 | 74 | 1 | 1 | 31 | 20 | 118 | 79 |
| Perform normal takeoff from the ground | 1 | 1 | 16 | 17 | 77 | 82 | 1 | 1 | 24 | 15 | 128 | 84 |
| Perform normal takeoff from hover | 1 | 1 | 12 | 13 | 82 | 86 | 1 | 1 | 21 | 14 | 129 | 85 |
| Perform normal takeoff to hover | 1 | 1 | 13 | 14 | 80 | 85 | 3 | 2 | 23 | 15 | 125 | 83 |
| Perform confined area takeoff | 2 | 2 | 19 | 20 | 73 | 78 | 4 | 3 | 36 | 23 | 112 | 74 |
| Perform maximum performance takeoff | 3 | 3 | 19 | 20 | 72 | 77 | 6 | 4 | 38 | 25 | 106 | 71 |
| Perform basic flight maneuvers | 1 | 1 | 17 | 18 | 76 | 81 | 1 | 1 | 24 | 16 | 128 | 83 |
| Perform normal approach to hover | 1 | 1 | 17 | 18 | 74 | 81 | 1 | 1 | 30 | 20 | 120 | 79 |
| Perform normal approach to ground | 3 | 3 | 19 | 20 | 72 | 77 | 2 | 1 | 34 | 23 | 115 | 76 |
| Perform shallow approach to a running landing | 8 | 9 | 26 | 28 | 59 | 63 | 6 | 4 | 41 | 28 | 102 | 68 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BASIC TASKS cont'd | | | | | | | | | | | | |
| Perform confined area approach and landing | 2 | 2 | 26 | 28 | 66 | 70 | 9 | 6 | 41 | 27 | 101 | 67 |
| Perform pinnacle approach and landing | 7 | 7 | 30 | 32 | 57 | 61 | 21 | 15 | 50 | 34 | 76 | 51 |
| Perform steep approach and landing | 2 | 2 | 25 | 27 | 66 | 71 | 3 | 2 | 41 | 27 | 107 | 71 |
| Perform emergency procedures for engine failure | 4 | 4 | 38 | 40 | 53 | 56 | 5 | 3 | 61 | 40 | 87 | 57 |
| Perform emergency procedures for engine fire | 7 | 7 | 51 | 54 | 37 | 39 | 12 | 8 | 81 | 53 | 60 | 39 |
| Perform emergency procedures for hydraulic system malfunction | 4 | 4 | 38 | 39 | 55 | 57 | 7 | 5 | 49 | 32 | 98 | 63 |
| Perform emergency procedures for governor control malfunction | 12 | 12 | 49 | 51 | 36 | 37 | 20 | 13 | 72 | 48 | 58 | 39 |
| Perform emergency procedures for antitorque malfunction | 15 | 26 | 34 | 36 | 46 | 48 | 17 | 11 | 68 | 45 | 67 | 44 |
| React to or perform emergency procedures for illuminated caution light | 4 | 4 | 38 | 40 | 54 | 56 | 5 | 3 | 67 | 44 | 81 | 53 |
| Perform autorotations from a hover | 3 | 4 | 35 | 36 | 58 | 60 | 2 | 1 | 52 | 35 | 98 | 64 |
| Perform low level autorotations | 4 | 5 | 44 | 46 | 47 | 49 | 3 | 2 | 47 | 31 | 101 | 67 |
| Perform standard autorotations | 6 | 6 | 30 | 31 | 60 | 63 | 2 | 1 | 46 | 30 | 106 | 69 |
| Perform autorotations with turn | 27 | 28 | 35 | 37 | 33 | 35 | 42 | 28 | 47 | 31 | 61 | 41 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **INSTRUMENT TASKS** | | | | | | | | | | | | |
| Perform instrument takeoff | 15 | 16 | 34 | 37 | 44 | 47 | 20 | 13 | 64 | 42 | 67 | 45 |
| Perform ADF approach | 7 | 7 | 35 | 38 | 51 | 55 | 14 | 9 | 60 | 40 | 77 | 51 |
| Perform VOR approach | 9 | 10 | 33 | 35 | 51 | 55 | 13 | 9 | 62 | 42 | 74 | 49 |
| Perform ILS approach | 9 | 10 | 35 | 37 | 49 | 53 | 12 | 8 | 62 | 41 | 77 | 51 |
| Perform GCA approach | 2 | 2 | 30 | 32 | 61 | 66 | 8 | 5 | 46 | 31 | 95 | 64 |
| Perform VOR navigation/tracking | 6 | 7 | 28 | 31 | 56 | 62 | 8 | 5 | 60 | 40 | 82 | 55 |
| Perform ADF navigation/tracking | 3 | 4 | 34 | 37 | 54 | 59 | 11 | 7 | 59 | 40 | 78 | 53 |
| Perform FM homing procedures | 12 | 13 | 38 | 42 | 40 | 45 | 23 | 15 | 57 | 38 | 71 | 47 |
| Perform holding procedures | 14 | 15 | 36 | 40 | 41 | 45 | 28 | 19 | 69 | 46 | 52 | 35 |
| Perform unusual attitude recovery | 11 | 11 | 29 | 32 | 52 | 57 | 10 | 7 | 60 | 40 | 80 | 53 |
| Perform procedures for lost communications | 23 | 25 | 30 | 33 | 38 | 42 | 32 | 21 | 70 | 47 | 48 | 32 |
| Communicate as required with appropriate ground agencies while on IFR/VFR flight plan | 4 | 5 | 40 | 43 | 48 | 52 | 10 | 6 | 69 | 46 | 72 | 48 |
| Perform vertical (inadvertent IMC) helicopter IFR procedures | 15 | 16 | 43 | 45 | 37 | 39 | 18 | 11 | 75 | 49 | 61 | 40 |
| **TACTICAL TASKS** | | | | | | | | | | | | |
| Plan a daylight terrain flight mission | 5 | 5 | 33 | 34 | 58 | 61 | 8 | 6 | 53 | 35 | 89 | 59 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| TACTICAL TASKS cont'd | f | % | f | % | f | % | f | % | f | % | f | % |
| Conduct coordination with supported units | 30 | 32 | 28 | 29 | 37 | 39 | 52 | 34 | 51 | 34 | 48 | 32 |
| Perform low level flight | 1 | 1 | 24 | 25 | 70 | 74 | 3 | 2 | 38 | 25 | 111 | 73 |
| Perform contour flight | 0 | 0 | 30 | 31 | 67 | 69 | 2 | 1 | 44 | 29 | 106 | 70 |
| Perform NOE flight | 2 | 2 | 37 | 39 | 57 | 59 | 9 | 6 | 53 | 35 | 91 | 59 |
| Perform aerial radio replay | 45 | 48 | 33 | 35 | 16 | 17 | 85 | 56 | 46 | 30 | 21 | 14 |
| Transmit Spot report | 37 | 40 | 32 | 34 | 25 | 26 | 47 | 31 | 49 | 33 | 53 | 36 |
| Perform quick stop | 5 | 5 | 35 | 37 | 55 | 58 | 10 | 7 | 55 | 36 | 87 | 57 |
| Conduct tactical flight for multiaircraft operations | 12 | 13 | 40 | 42 | 43 | 45 | 34 | 23 | 51 | 34 | 65 | 43 |
| Perform evasive maneuvers | 27 | 29 | 35 | 37 | 32 | 34 | 38 | 25 | 57 | 37 | 58 | 38 |
| Plan and perform tactical instrument flight | 29 | 31 | 38 | 40 | 28 | 29 | 34 | 22 | 70 | 46 | 49 | 32 |
| Plan and perform tactical instrument approaches | 29 | 30 | 36 | 38 | 30 | 32 | 35 | 23 | 65 | 42 | 53 | 35 |
| Utilize map for navigation | 3 | 4 | 27 | 28 | 65 | 68 | 5 | 4 | 37 | 24 | 111 | 72 |
| Operate radar warning receiver (RWR) AN/APR-39 in a threat environment | 76 | 83 | 9 | 10 | 6 | 7 | 123 | 85 | 18 | 12 | 5 | 3 |
| Operate SIF/IFF equipment | 69 | 74 | 14 | 15 | 10 | 11 | 108 | 73 | 29 | 19 | 12 | 8 |
| Identify enemy attack aircraft | 36 | 39 | 37 | 40 | 19 | 21 | 52 | 34 | 69 | 46 | 30 | 20 |
| Identify major allied equipment | 29 | 31 | 43 | 45 | 23 | 24 | 34 | 23 | 72 | 48 | 43 | 29 |
| Identify Soviet and US individual weapons | 44 | 46 | 29 | 31 | 22 | 23 | 48 | 32 | 72 | 48 | 31 | 20 |
| Perform ECCM | 56 | 62 | 21 | 23 | 14 | 15 | 69 | 47 | 54 | 37 | 24 | 16 |
| Perform hoist operations | 62 | 67 | 18 | 19 | 13 | 14 | 116 | 80 | 21 | 14 | 8 | 6 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TACTICAL TASKS cont'd | | | | | | | | | | | | |
| Prepare for night flight/ operations | 11 | 12 | 45 | 48 | 37 | 40 | 10 | 7 | 70 | 46 | 72 | 47 |
| Perform CEOI | 16 | 17 | 36 | 39 | 41 | 44 | 19 | 12 | 57 | 37 | 77 | 51 |
| Call for/adjust artillery/ mortar fire | 33 | 37 | 31 | 34 | 26 | 29 | 51 | 34 | 57 | 38 | 43 | 28 |
| Perform FARRP operations | 22 | 25 | 31 | 34 | 37 | 41 | 51 | 34 | 54 | 36 | 44 | 30 |
| Perform route reconnaissance | 13 | 14 | 44 | 48 | 35 | 38 | 7 | 5 | 72 | 47 | 73 | 48 |
| Perform area reconnaissance | 12 | 13 | 46 | 49 | 36 | 38 | 7 | 4 | 75 | 50 | 69 | 46 |
| Perform FM homing | 14 | 15 | 45 | 48 | 35 | 37 | 21 | 14 | 59 | 39 | 71 | 47 |
| Perform helicopter masking and unmasking | 3 | 3 | 41 | 44 | 50 | 53 | 5 | 3 | 57 | 38 | 90 | 59 |
| Use M-24 protective mask during flight | 32 | 35 | 27 | 29 | 33 | 36 | 43 | 29 | 67 | 45 | 39 | 26 |
| Complete after action report | 41 | 44 | 26 | 28 | 26 | 28 | 68 | 47 | 55 | 37 | 24 | 16 |
| Submit reports and/or debriefings, (oral or written) to the Operations (or S-2) Officer | 39 | 41 | 28 | 30 | 27 | 29 | 74 | 50 | 49 | 33 | 25 | 17 |
| Demonstrate knowledge of survival, evasion, resistance and escape techniques | 31 | 33 | 39 | 41 | 24 | 26 | 41 | 28 | 57 | 38 | 51 | 34 |
| Operate emergency radio | 30 | 33 | 41 | 44 | 22 | 23 | 44 | 29 | 65 | 43 | 42 | 28 |
| Demonstrate use of aircraft survivability equipment | 22 | 24 | 48 | 52 | 22 | 24 | 47 | 32 | 62 | 42 | 39 | 26 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NIGHT TASKS | | | | | | | | | | | | |
| Perform autorotations from a hover | 32 | 33 | 30 | 32 | 33 | 35 | 8 | 6 | 64 | 42 | 79 | 52 |
| Perform low level autorotations | 36 | 38 | 33 | 34 | 27 | 28 | 16 | 11 | 61 | 40 | 75 | 49 |
| Perform standard autorotations | 28 | 29 | 36 | 38 | 31 | 33 | 11 | 7 | 61 | 41 | 78 | 52 |
| Perform approach to minimum lighted area | 9 | 10 | 39 | 43 | 43 | 47 | 11 | 7 | 66 | 44 | 73 | 49 |
| Perform visual glide slope approach and landing | 10 | 11 | 47 | 50 | 36 | 39 | 19 | 13 | 63 | 43 | 64 | 44 |
| Perform low level flight | 11 | 12 | 37 | 40 | 44 | 48 | 20 | 14 | 53 | 36 | 73 | 50 |
| Perform contour flight | 20 | 21 | 34 | 36 | 40 | 43 | 25 | 16 | 54 | 36 | 72 | 48 |
| Perform NOE flight | 37 | 41 | 26 | 29 | 26 | 29 | 53 | 36 | 46 | 31 | 49 | 33 |
| Perform night operations | 19 | 22 | 39 | 43 | 32 | 35 | 16 | 11 | 67 | 45 | 66 | 44 |
| Perform takeoff to a hover (NH) | 45 | 57 | 15 | 19 | 19 | 24 | 5 | 3 | 56 | 38 | 85 | 59 |
| Perform landing to a hover (NH) | 50 | 58 | 16 | 18 | 21 | 24 | 3 | 2 | 56 | 38 | 90 | 60 |
| Perform hovering turns (NH) | 47 | 56 | 15 | 18 | 26 | 26 | 3 | 2 | 58 | 39 | 88 | 59 |
| Perform sideward and rearward hovering flight (NH) | 49 | 57 | 18 | 21 | 19 | 22 | 8 | 5 | 59 | 40 | 80 | 55 |
| Perform takeoff | 39 | 44 | 24 | 28 | 24 | 28 | 3 | 2 | 54 | 37 | 91 | 61 |
| Perform approach | 37 | 43 | 26 | 31 | 22 | 26 | 6 | 4 | 53 | 36 | 89 | 60 |
| Perform shallow approach to a running landing | 50 | 61 | 21 | 25 | 12 | 14 | 14 | 9 | 64 | 43 | 72 | 48 |
| Perform simulated hydraulic failure | 52 | 64 | 15 | 18 | 15 | 18 | 19 | 13 | 68 | 46 | 62 | 41 |
| Perform confined area operations | 44 | 54 | 20 | 24 | 18 | 22 | 33 | 22 | 55 | 37 | 60 | 41 |
| Perform pinnacle and ridgeline operations | 61 | 72 | 13 | 15 | 11 | 13 | 56 | 39 | 51 | 35 | 37 | 26 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NIGHT VISION GOGGLE TASKS | | | | | | | | | | | | |
| Perform preflight check | 76 | 98 | 1 | 1 | 1 | 1 | 34 | 24 | 56 | 40 | 49 | 36 |
| Perform takeoff to hover | 79 | 97 | 2 | 2 | 1 | 1 | 39 | 27 | 62 | 43 | 44 | 30 |
| Perform landing from hover | 81 | 97 | 2 | 2 | 1 | 1 | 41 | 27 | 60 | 41 | 47 | 32 |
| Perform hovering | 79 | 97 | 2 | 2 | 1 | 1 | 38 | 26 | 61 | 42 | 45 | 32 |
| Perform airwork/traffic pattern | 82 | 97 | 2 | 2 | 1 | 1 | 39 | 26 | 65 | 45 | 42 | 29 |
| Perform takeoff | 80 | 94 | 4 | 5 | 1 | 1 | 36 | 24 | 63 | 43 | 47 | 33 |
| Perform approach | 76 | 92 | 5 | 6 | 2 | 2 | 44 | 31 | 61 | 42 | 40 | 27 |
| Perform low level autorotation | 80 | 93 | 2 | 2 | 3 | 4 | 55 | 37 | 59 | 40 | 35 | 23 |
| Perform NVG failure | 80 | 93 | 5 | 6 | 1 | 1 | 46 | 31 | 63 | 43 | 36 | 26 |
| Perform IMC procedure | 81 | 95 | 3 | 3 | 2 | 2 | 55 | 38 | 53 | 37 | 37 | 25 |
| Perform terrain flight operations | 80 | 93 | 5 | 6 | 1 | 1 | 75 | 51 | 41 | 28 | 31 | 21 |
| Perform terrain flight navigation | 78 | 94 | 3 | 4 | 2 | 2 | 86 | 58 | 37 | 25 | 24 | 17 |
| Perform terrain flight takeoff and approach | 79 | 96 | 2 | 2 | 2 | 2 | 73 | 50 | 45 | 31 | 29 | 19 |
| Perform hovering in- and out-of-ground effect | 80 | 96 | 2 | 2 | 2 | 2 | 81 | 56 | 38 | 26 | 26 | 18 |
| Perform NOE quick stop/deceleration | 80 | 94 | 3 | 3 | 3 | 3 | 99 | 66 | 28 | 19 | 23 | 15 |
| UTILITY TASKS | (Utility aviators) | | | | | | (Utility Track aviators) | | | | | |
| Perform external load missions (day) | 10 | 18 | 25 | 45 | 21 | 37 | 22 | 25 | 48 | 53 | 20 | 22 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL 180/20 <Adequate f | % | Adequate f | % | Competent f | % | 175/40 <Adequate f | % | Adequate f | % | Competent f | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **UTILITY TASKS cont'd** | | | | | | | | | | | | |
| Perform internal load missions (day) | 2 | 4 | 20 | 33 | 38 | 63 | 15 | 16 | 30 | 32 | 49 | 52 |
| Perform internal load missions (night) | 4 | 7 | 24 | 40 | 32 | 53 | 17 | 18 | 38 | 40 | 40 | 42 |
| Perform rappelling missions | 27 | 48 | 16 | 29 | 13 | 23 | 47 | 50 | 29 | 31 | 18 | 19 |
| Perform pinnacle takeoff | 5 | 9 | 20 | 34 | 33 | 57 | 16 | 18 | 36 | 39 | 40 | 43 |
| Perform formation takeoff | 3 | 5 | 22 | 38 | 33 | 57 | 5 | 6 | 45 | 47 | 45 | 47 |
| Perform formation landing | 3 | 5 | 24 | 41 | 32 | 54 | 6 | 6 | 47 | 50 | 41 | 44 |
| Perform external load emergency procedures | 15 | 25 | 24 | 40 | 21 | 35 | 30 | 32 | 47 | 49 | 18 | 19 |
| Conduct an air movement | 14 | 24 | 20 | 33 | 26 | 43 | 32 | 35 | 37 | 40 | 24 | 25 |
| Perform landing zone reconnaissance | 11 | 19 | 17 | 28 | 32 | 53 | 5 | 5 | 49 | 52 | 40 | 43 |
| **AEROSCOUT TASKS** | (Transitioned Aeroscout aviators | | | | | | (Aeroscout Track aviators) | | | | | |
| Select/recommend landing zone | 6 | 30 | 6 | 30 | 8 | 40 | 4 | 7 | 19 | 37 | 29 | 56 |
| Select assembly areas | 8 | 38 | 9 | 43 | 4 | 19 | 9 | 17 | 21 | 39 | 24 | 44 |
| Select/recommend holding areas | 8 | 40 | 8 | 40 | 4 | 20 | 11 | 21 | 16 | 30 | 26 | 49 |
| Select terrain flight routes for air elements | 9 | 45 | 7 | 35 | 4 | 20 | 16 | 30 | 12 | 22 | 26 | 48 |
| Select attack positions for attack helicopters | 8 | 40 | 9 | 45 | 3 | 15 | 10 | 18 | 18 | 34 | 26 | 48 |
| Perform screening mission | 9 | 43 | 7 | 33 | 5 | 24 | 15 | 29 | 14 | 27 | 23 | 44 |

IERW GRADUATE RATINGS OF CURRENT PERFORMANCE LEVEL BY TASK

| AVIATOR TASK | GRADUATE CURRENT PERFORMANCE LEVEL | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 180/20 | | | | | | 175/40 | | | | | |
| | <Adequate | | Adequate | | Competent | | <Adequate | | Adequate | | Competent | |
| AEROSCOUT TASKS cont'd | f | % | f | % | f | % | f | % | f | % | f | % |
| Designate attack helicopter targets | 7 | 34 | 8 | 38 | 6 | 28 | 11 | 21 | 17 | 32 | 25 | 47 |
| Provide security during attack | 9 | 43 | 8 | 38 | 4 | 19 | 15 | 28 | 14 | 26 | 25 | 46 |
| Perform tactical movement techniques | 6 | 29 | 11 | 52 | 4 | 19 | 9 | 16 | 19 | 36 | 26 | 48 |
| Call and control TAC airstrikes | 11 | 53 | 7 | 33 | 3 | 14 | 32 | 60 | 11 | 21 | 10 | 19 |
| Transmit information using visual signaling techniques | 13 | 65 | 5 | 25 | 2 | 10 | 37 | 70 | 9 | 17 | 7 | 13 |
| Report reconnaissance data used for classification of roads and bridges | 8 | 40 | 9 | 45 | 3 | 15 | 11 | 21 | 20 | 37 | 23 | 42 |
| Perform zone reconnaissance | 7 | 34 | 9 | 43 | 5 | 23 | 6 | 12 | 19 | 37 | 27 | 51 |
| Select/recommend entry/exit routes | 11 | 52 | 7 | 33 | 3 | 15 | 13 | 25 | 16 | 30 | 24 | 45 |
| Identify primary front line units by type and number of personnel and equipment | 12 | 57 | 7 | 33 | 2 | 10 | 23 | 44 | 15 | 28 | 15 | 28 |
| Detect enemy camouflage and concealment | 11 | 52 | 6 | 29 | 4 | 19 | 20 | 40 | 15 | 29 | 16 | 31 |

# APPENDIX G

## IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

## APPENDIX G

## IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

This appendix lists the frequencies (f) and percentages (%) of IERW training adequacy responses (Adequate, Slightly Overtrained, and Substantially Overtrained) from IERW graduates in response to Graduate Field Questionnaire, Section II, Question 1. The program graduates rated their training for each of the 140 critical tasks as "Substantially Undertrained," "Slightly Undertrained," "Adequately Trained," "Slightly Overtrained," and "Substantially Overtrained."

The percentages shown are for the combination of the upper three categories. Subtraction of these percentages from 100 would yield the percentage "Slightly or Substantially Undertrained."

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| BASIC TASKS | f | % | f | % | f | % |
| Perform premission planning | 83 | 88 | 79 | 85 | 51 | 89 |
| Use required publications | 85 | 90 | 86 | 92 | 50 | 89 |
| Perform aircraft mission briefing | 53 | 56 | 41 | 43 | 36 | 62 |
| Plan a VFR flight | 82 | 85 | 77 | 86 | 48 | 85 |
| Plan an IFR flight | 88 | 91 | 80 | 87 | 47 | 81 |
| Perform weight and balance computations | 45 | 46 | 21 | 21 | 18 | 33 |
| File a flight plan | 84 | 89 | 89 | 93 | 50 | 86 |
| Perform preflight inspection | 64 | 66 | 73 | 79 | 54 | 96 |
| Perform engine runup procedures | 93 | 97 | 92 | 97 | 55 | 97 |
| Perform aircraft hover/taxi | 93 | 98 | 89 | 98 | 55 | 100 |
| Perform power check | 90 | 94 | 91 | 96 | 52 | 95 |
| Perform normal takeoff from the ground | 84 | 91 | 94 | 99 | 55 | 97 |
| Perform normal takeoff from hover | 94 | 100 | 91 | 100 | 54 | 100 |
| Perform normal takeoff to hover | 94 | 100 | 93 | 99 | 55 | 99 |
| Perform confined area takeoff | 88 | 91 | 83 | 87 | 47 | 86 |
| Perform maximum performance takeoff | 92 | 97 | 89 | 95 | 53 | 94 |
| Perform basic flight maneuvers | 89 | 97 | 98 | 100 | 55 | 98 |
| Perform normal approach to hover | 92 | 97 | 95 | 99 | 54 | 99 |
| Perform normal approach to ground | 82 | 87 | 91 | 96 | 53 | 94 |
| Perform shallow approach to a running landing | 76 | 81 | 89 | 93 | 45 | 83 |
| Perform confined area approach and landing | 82 | 86 | 80 | 84 | 44 | 80 |
| Perform pinnacle approach and landing | 75 | 78 | 47 | 50 | 31 | 55 |
| Perform steep approach and landing | 89 | 95 | 90 | 97 | 54 | 97 |
| Perform emergency procedures for engine failure | 89 | 93 | 93 | 99 | 53 | 96 |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| **BASIC TASKS cont'd** | f | % | f | % | f | % |
| Perform emergency procedures for engine fire | 75 | 80 | 77 | 82 | 41 | 77 |
| Perform emergency procedures for hydraulic system malfunction | 92 | 96 | 92 | 98 | 50 | 92 |
| Perform emergency procedures for governor control malfunction | 71 | 73 | 78 | 79 | 38 | 68 |
| Perform emergency procedures for antitorque malfunction | 75 | 77 | 76 | 77 | 45 | 83 |
| React to or perform emergency procedures for illuminated caution light | 83 | 86 | 87 | 90 | 51 | 90 |
| Perform autorotation from a hover | 90 | 93 | 93 | 99 | 55 | 98 |
| Perform low level autorotation | 86 | 88 | 90 | 97 | 51 | 93 |
| Perform standard autorotation | 94 | 97 | 93 | 98 | 55 | 99 |
| Perform autorotation with turn | 46 | 47 | 46 | 48 | 29 | 55 |
| **INSTRUMENT TASKS** | | | | | | |
| Perform instrument takeoff | 76 | 81 | 85 | 88 | 48 | 84 |
| Perform ADF approach | 90 | 96 | 92 | 97 | 50 | 88 |
| Perform VOR approach | 90 | 97 | 92 | 99 | 52 | 94 |
| Perform ILS approach | 90 | 94 | 92 | 96 | 53 | 95 |
| Perform GCA approach | 92 | 98 | 93 | 100 | 50 | 92 |
| Perform VOR navigation/tracking | 89 | 95 | 94 | 98 | 54 | 95 |
| Perform ADF navigation/tracking | 89 | 94 | 92 | 98 | 47 | 89 |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| INSTRUMENTS TASKS cont'd | f | % | f | % | f | % |
| Perform FM homing procedures | 83 | 86 | 76 | 81 | 34 | 60 |
| Perform holding procedures | 83 | 85 | 78 | 82 | 46 | 82 |
| Perform unusual attitude recovery | 88 | 90 | 90 | 94 | 50 | 89 |
| Perform procedures for lost communications | 65 | 68 | 69 | 72 | 38 | 68 |
| Communicate as required with appropriate ground agencies while on IFR/VFR flight plan | 73 | 74 | 73 | 77 | 45 | 79 |
| Perform vertical (inadvertent IMC) helicopter IFR procedures | 59 | 60 | 74 | 76 | 38 | 68 |
| TACTICAL TASKS | | | | | | |
| Plan a daylight terrain flight mission | 78 | 81 | 83 | 92 | 46 | 89 |
| Conduct coordination with supported unit(s) | 32 | 33 | 41 | 43 | 24 | 45 |
| Perform low level flight | 92 | 95 | 93 | 96 | 51 | 94 |
| Perform contour flight | 89 | 91 | 91 | 97 | 50 | 93 |
| Perform NOE flight | 84 | 86 | 79 | 83 | 44 | 79 |
| Perform aerial radio relay | 26 | 28 | 22 | 23 | 14 | 26 |
| Transmit Spot report | 38 | 40 | 31 | 33 | 46 | 86 |
| Perform quick stop | 80 | 84 | 82 | 89 | 52 | 95 |
| Conduct tactical flight for multi-aircraft operations | 48 | 51 | 58 | 63 | 31 | 55 |
| Perform evasive maneuvers | 33 | 34 | 48 | 50 | 41 | 73 |
| Plan and perform tactical instrument flight | 43 | 45 | 71 | 74 | 29 | 52 |
| Plan and perform tactical instrument approaches | 46 | 48 | 68 | 71 | 32 | 59 |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| TACTICAL TASKS cont'd | f | % | f | % | f | % |
| Utilize map for navigation | 87 | 91 | 92 | 96 | 55 | 98 |
| Operate radar warning receiver (RWR) AN/APR-39 in a threat environment | 8 | 8 | 5 | 5 | 3 | 6 |
| Operate SIF/IFF equipment | 20 | 21 | 13 | 14 | 6 | 12 |
| Identify enemy attack equipment | 31 | 32 | 51 | 52 | 30 | 57 |
| Identify major allied equipment | 43 | 44 | 63 | 67 | 40 | 77 |
| Identify Soviet and US individual weapons | 33 | 34 | 46 | 47 | 34 | 62 |
| Perform ECCM | 17 | 18 | 36 | 38 | 22 | 42 |
| Perform hoist operations | 23 | 24 | 12 | 13 | 7 | 13 |
| Prepare for night flight/operations | 72 | 76 | 87 | 95 | 49 | 90 |
| Perform CEOI | 59 | 63 | 78 | 84 | 42 | 76 |
| Call for/adjust artillery/mortar fire | 46 | 49 | 46 | 48 | 42 | 76 |
| Perform FARRP operations | 53 | 58 | 47 | 49 | 35 | 62 |
| Perform route reconnaissance | 63 | 68 | 83 | 86 | 52 | 93 |
| Perform area reconnaissance | 69 | 73 | 81 | 89 | 50 | 90 |
| Perform FM homing | 71 | 74 | 79 | 81 | 37 | 65 |
| Perform helicopter masking and unmasking | 85 | 89 | 86 | 91 | 53 | 97 |
| Use M-24 protective mask during flight | 37 | 39 | 51 | 52 | 27 | 49 |
| Complete after action report | 28 | 29 | 21 | 22 | 17 | 30 |
| Submit reports and/or debriefings (oral or written) to the Operations (or S-2) Officer | 22 | 23 | 18 | 19 | 13 | 26 |
| Demonstrate knowledge of survival, evasion, resistance, and escape techniques | 38 | 39 | 55 | 59 | 30 | 57 |
| Operate emergency radio | 24 | 25 | 42 | 43 | 23 | 43 |
| Demonstrate use of aircraft survivability equipment | 34 | 36 | 46 | 49 | 28 | 51 |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| | f | % | f | % | f | % |
| **NIGHT TASKS** | | | | | | |
| Perform autorotation from a hover | 51 | 52 | 84 | 90 | 44 | 80 |
| Perform low level autorotation | 44 | 46 | 90 | 95 | 45 | 82 |
| Perform standard autorotation | 60 | 64 | 94 | 97 | 46 | 83 |
| Perform approach to minimum lighted area | 72 | 77 | 91 | 96 | 49 | 92 |
| Perform visual glide slope approach and landing | 65 | 69 | 74 | 80 | 34 | 64 |
| Perform low level flight | 65 | 69 | 70 | 74 | 42 | 76 |
| Perform contour flight | 54 | 56 | 69 | 72 | 40 | 72 |
| Perform NOE flight | 41 | 44 | 49 | 51 | 29 | 52 |
| Perform night operations | 60 | 66 | 85 | 88 | 45 | 81 |
| Perform takeoff to a hover (NH) | 31 | 35 | 91 | 96 | 52 | 97 |
| Perform landing to a hover (NH) | 31 | 36 | 87 | 96 | 52 | 97 |
| Perform hovering turns (NH) | 30 | 34 | 92 | 96 | 53 | 99 |
| Perform sideward and rearward hovering flight | 26 | 30 | 84 | 91 | 47 | 85 |
| Perform takeoff | 44 | 49 | 93 | 98 | 53 | 98 |
| Perform approach | 40 | 46 | 92 | 97 | 50 | 98 |
| Perform shallow approach to a running landing | 23 | 26 | 84 | 91 | 44 | 82 |
| Perform simulated hydraulic failure | 23 | 26 | 73 | 80 | 41 | 73 |
| Perform confined area operations | 29 | 33 | 62 | 66 | 31 | 55 |
| Perform pinnacle and ridgeline operation | 17 | 19 | 36 | 39 | 24 | 43 |
| **NIGHT VISION GOGGLE (NVG) TASKS** | | | | | | |
| Perform preflight check | 2 | 3 | 68 | 74 | 46 | 84 |
| Perform takeoff to hover | 2 | 2 | 62 | 66 | 43 | 84 |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| NIGHT VISION GOGGLE (NVG) TASKS cont'd | f | % | f | % | f | % |
| Perform landing from hover | 1 | 1 | 62 | 67 | 42 | 81 |
| Perform hovering | 2 | 2 | 65 | 67 | 43 | 85 |
| Perform airwork/traffic pattern | 2 | 2 | 66 | 69 | 44 | 82 |
| Perform takeoff | 2 | 2 | 69 | 72 | 43 | 82 |
| Perform approach | 5 | 6 | 62 | 68 | 46 | 84 |
| Perform autorotation low level | 4 | 4 | 57 | 61 | 39 | 72 |
| Perform NVG failure | 4 | 4 | 56 | 59 | 39 | 73 |
| Perform IMC procedures | 4 | 4 | 52 | 56 | 38 | 68 |
| Perform terrain flight operations | 3 | 3 | 37 | 40 | 32 | 60 |
| Perform terrain flight navigation | 2 | 2 | 33 | 35 | 27 | 51 |
| Perform terrain flight takeoff and approach | 3 | 3 | 38 | 40 | 33 | 62 |
| Perform hovering in- and out-of-ground effect | 2 | 2 | 31 | 33 | 29 | 56 |
| Perform NOE quick stop/deceleration | 3 | 3 | 21 | 22 | 27 | 51 |
| UTILITY TASKS | (Utility aviators) | | | | | |
| Perform external load missions (day) | 37 | 67 | 44 | 48 | | |
| Perform internal load missions (day) | 39 | 65 | 58 | 63 | | |
| Perform internal load missions (night) | 29 | 49 | 52 | 53 | | |
| Perform rappelling missions | 6 | 11 | 30 | 31 | | |
| Perform pinnacle takeoff | 45 | 80 | 53 | 58 | | |
| Perform formation takeoff | 35 | 59 | 72 | 74 | | |
| Perform formation landing | 34 | 56 | 70 | 73 | | |
| Perform external load emergency procedures | 22 | 36 | 44 | 45 | | |

IERW GRADUATE ADEQUACY RATINGS OF IERW TRAINING BY TASK

| Aviator Tasks | Frequency and Percentage of Respondents Rating IERW Training as Adequate, Slightly Overtrained, or Substantially Overtrained. | | | | | |
|---|---|---|---|---|---|---|
| | 180/20 | | 175/40 Utility | | 175/40 Aeroscout | |
| **UTILITY TASKS cont'd** | f | % | f | % | f | % |
| Conduct an air movement | 18 | 30 | 43 | 44 | | |
| Perform landing zone reconnaissance | 42 | 70 | 91 | 94 | | |
| ***AEROSCOUT TASKS*** | (Transitioned Aeroscout aviators) | | | | (Aeroscout Track aviators) | |
| Select/recommend landing zone | 9 | 43 | | | 44 | 86 |
| Select assembly areas | 6 | 30 | | | 38 | 73 |
| Select/recommend holding areas | 4 | 20 | | | 37 | 74 |
| Select terrain flight routes for air elements | 5 | 25 | | | 32 | 63 |
| Select attack positions for attack helicopters | 2 | 10 | | | 40 | 79 |
| Perform screening mission | 3 | 16 | | | 37 | 73 |
| Designate attack helicopter targets | 5 | 24 | | | 38 | 73 |
| Provide security during attack | 2 | 10 | | | 36 | 68 |
| Perform tactical movement techniques | 6 | 30 | | | 43 | 80 |
| Call and control TAC airstrikes | 4 | 20 | | | 13 | 25 |
| Transmit information using visual signaling techniques | 1 | 5 | | | 7 | 14 |
| Report reconnaissance data used for classification of roads and bridges | 4 | 20 | | | 37 | 74 |
| Perform zone reconnaissance | 7 | 33 | | | 44 | 88 |
| Select/recommend entry/exit routes | 1 | 5 | | | 33 | 66 |
| Identify primary front line units by type and number of personnel or equipment | 2 | 10 | | | 22 | 42 |
| Detect enemy camouflage and concealment | 2 | 10 | | | 22 | 44 |

# APPENDIX H

## GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

## APPENDIX H

### *GRADUATE FREQUENCY OF PERFORMANCE* IN MISSION TRAINING BY TASK

Question 4 of the Graduate Field Questionnaire, Section II, requested graduates to respond by indicating how many times an aviator task was performed during mission training in their newly assigned unit. The categories of responses were:

A. Zero times

B. 1 to 5 times

C. 6 to 10 times

D. 11 to 15 times

E. More than 15 times

Because of the relatively low number of responses in the "more than 15 times" category, that response was combined with the previous one "11 to 15 times." These two categories make up the new category "Greater than 10 times." This appendix lists the frequencies of the four categories for each program graduate, and the total number which responded to each task.

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **BASIC TASKS** | | | | | | | | | | |
| Perform premission planning | 94 | 8 | 10 | 5 | 71 | 152 | 21 | 31 | 16 | 84 |
| Use required publications | 95 | 8 | 7 | 12 | 68 | 152 | 20 | 39 | 22 | 71 |
| Perform aircraft mission briefing | 93 | 27 | 18 | 8 | 40 | 148 | 61 | 43 | 15 | 29 |
| Plan a VFR flight | 91 | 11 | 7 | 9 | 64 | 150 | 26 | 33 | 15 | 76 |
| Plan an IFR flight | 89 | 35 | 23 | 8 | 23 | 144 | 80 | 35 | 12 | 17 |
| Perform weight and balance computations | 93 | 42 | 21 | 7 | 23 | 148 | 82 | 38 | 10 | 18 |
| File a flight plan | 93 | 10 | 5 | 12 | 66 | 149 | 24 | 32 | 16 | 77 |
| Perform preflight inspection | 94 | 5 | 4 | 1 | 84 | 146 | 7 | 16 | 9 | 114 |
| Perform engine runup procedure | 94 | 6 | 1 | 2 | 85 | 149 | 14 | 16 | 9 | 110 |
| Perform aircraft hover/taxi | 94 | 5 | 0 | 4 | 85 | 147 | 11 | 17 | 6 | 113 |
| Perform power check | 91 | 7 | 6 | 3 | 75 | 148 | 17 | 19 | 6 | 106 |
| Perform normal takeoff from the ground | 95 | 6 | 3 | 2 | 84 | 150 | 11 | 19 | 9 | 111 |
| Perform normal takeoff from hover | 94 | 7 | 1 | 2 | 84 | 151 | 12 | 20 | 4 | 115 |
| Perform normal takeoff to hover | 93 | 5 | 2 | 1 | 85 | 150 | 10 | 19 | 3 | 118 |
| Perform confined area takeoff | 93 | 8 | 2 | 8 | 75 | 144 | 21 | 26 | 10 | 87 |
| Perform maximum performance takeoff | 93 | 12 | 7 | 6 | 68 | 149 | 34 | 40 | 10 | 65 |
| Perform basic flight maneuvers | 92 | 6 | 1 | 2 | 83 | 149 | 11 | 19 | 4 | 115 |
| Perform normal approach to hover | 90 | 9 | 2 | 2 | 77 | 150 | 9 | 19 | 8 | 114 |
| Perform normal approach to ground | 94 | 8 | 3 | 4 | 79 | 148 | 13 | 21 | 7 | 107 |
| Perform shallow approach to a running landing | 81 | 29 | 10 | 7 | 35 | 132 | 58 | 24 | 15 | 35 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **BASIC TASKS cont'd** | | | | | | | | | | |
| Perform confined area approach and landing | 90 | 8 | 4 | 4 | 74 | 144 | 31 | 25 | 17 | 71 |
| Perform pinnacle approach and landing | 92 | 25 | 12 | 8 | 47 | 142 | 64 | 32 | 11 | 35 |
| Perform steep approach and landing | 94 | 12 | 8 | 7 | 67 | 148 | 26 | 31 | 19 | 72 |
| Perform emergency procedures for engine failure | 78 | 47 | 11 | 5 | 15 | 140 | 75 | 30 | 11 | 24 |
| Perform emergency procedures for engine fire | 87 | 68 | 7 | 4 | 8 | 148 | 117 | 20 | 5 | 6 |
| Perform emergency procedures for hydraulic system malfunction | 77 | 48 | 8 | 7 | 14 | 139 | 74 | 32 | 14 | 19 |
| Perform emergency procedures for governor control malfunction | 89 | 69 | 9 | 3 | 8 | 149 | 116 | 21 | 7 | 5 |
| Perform emergency procedures for antitorque malfunction | 78 | 47 | 8 | 4 | 19 | 134 | 72 | 33 | 11 | 18 |
| React to or perform emergency procedures for illuminated caution light | 88 | 38 | 26 | 5 | 19 | 148 | 72 | 48 | 15 | 13 |
| Perform autorotations from a hover | 77 | 48 | 7 | 4 | 18 | 133 | 75 | 21 | 18 | 19 |
| Perform low level autorotations | 77 | 46 | 10 | 7 | 14 | 136 | 77 | 35 | 9 | 15 |
| Perform standard autorotations | 75 | 42 | 7 | 8 | 18 | 129 | 68 | 23 | 15 | 23 |
| Perform autorotations with turn | 81 | 55 | 8 | 5 | 13 | 139 | 98 | 21 | 9 | 11 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **INSTRUMENTS TASKS** | | | | | | | | | | |
| Perform instrument takeoff | 85 | 44 | 12 | 7 | 22 | 138 | 97 | 18 | 8 | 15 |
| Perform ADF approach | 84 | 37 | 12 | 9 | 26 | 140 | 93 | 29 | 5 | 13 |
| Perform VOR approach | 80 | 40 | 9 | 7 | 24 | 141 | 98 | 25 | 2 | 16 |
| Perform ILS approach | 81 | 49 | 6 | 8 | 18 | 143 | 108 | 19 | 3 | 13 |
| Perform GCA approach | 89 | 34 | 10 | 10 | 39 | 141 | 70 | 38 | 13 | 20 |
| Perform VOR navigation/tracking | 86 | 39 | 8 | 9 | 30 | 143 | 85 | 28 | 13 | 17 |
| Perform ADF navigation/tracking | 88 | 35 | 12 | 11 | 30 | 146 | 80 | 36 | 11 | 19 |
| Perform FM homing procedures | 94 | 60 | 16 | 4 | 14 | 147 | 108 | 18 | 8 | 13 |
| Perform holding procedures | 81 | 44 | 17 | 7 | 13 | 139 | 106 | 20 | 5 | 8 |
| Perform unusual attitude recovery | 88 | 58 | 6 | 7 | 17 | 145 | 109 | 19 | 4 | 13 |
| Perform procedures for lost communications | 89 | 67 | 8 | 7 | 7 | 148 | 123 | 16 | 4 | 5 |
| Communicate as required with appropriate ground agencies while on IFR/VFR flight plan | 93 | 18 | 7 | 11 | 57 | 146 | 48 | 19 | 11 | 68 |
| Perform vertical (inadvertent IMC) helicopter IFR procedures | 89 | 54 | 22 | 5 | 8 | 149 | 108 | 30 | 7 | 4 |
| **TACTICAL TASKS** | | | | | | | | | | |
| Plan a daylight terrain flight mission | 93 | 17 | 16 | 6 | 54 | 151 | 57 | 33 | 6 | 55 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| TACTICAL TASKS cont'd | | | | | | | | | | |
| Conduct coordination with supported units | 94 | 29 | 15 | 8 | 42 | 152 | 71 | 28 | 16 | 37 |
| Perform low level flight | 93 | 11 | 5 | 2 | 75 | 148 | 22 | 25 | 9 | 92 |
| Perform contour flight | 93 | 12 | 7 | 1 | 73 | 147 | 25 | 26 | 9 | 87 |
| Perform NOE flight | 93 | 15 | 14 | 6 | 58 | 147 | 61 | 31 | 9 | 46 |
| Perform aerial radio replay | 91 | 62 | 12 | 5 | 12 | 152 | 121 | 18 | 6 | 7 |
| Transmit Spot report | 94 | 50 | 23 | 5 | 16 | 150 | 100 | 15 | 10 | 25 |
| Perform quick stop | 90 | 25 | 15 | 8 | 42 | 141 | 57 | 27 | 16 | 41 |
| Conduct tactical flight for multiaircraft operations | 94 | 23 | 8 | 14 | 49 | 150 | 65 | 29 | 7 | 49 |
| Perform evasive maneuvers | 91 | 37 | 23 | 5 | 26 | 150 | 87 | 25 | 19 | 19 |
| Plan and perform tactical instrument flight | 92 | 61 | 17 | 6 | 8 | 148 | 121 | 23 | 1 | 3 |
| Plan and perform tactical instrument approaches | 92 | 63 | 18 | 5 | 6 | 146 | 116 | 22 | 2 | 6 |
| Utilize map for navigation | 91 | 9 | 4 | 3 | 75 | 149 | 24 | 20 | 14 | 91 |
| Operate radar warning receiver AN/APR-39 in a threat environment | 93 | 86 | 2 | 0 | 5 | 148 | 142 | 3 | 1 | 2 |
| Operate SIF/IFF equipment | 91 | 72 | 6 | 3 | 10 | 147 | 129 | 9 | 4 | 5 |
| Identify enemy attack aircraft | 93 | 57 | 19 | 6 | 11 | 150 | 110 | 19 | 8 | 13 |
| Identify major allied equipment | 87 | 47 | 16 | 9 | 15 | 145 | 97 | 21 | 10 | 17 |
| Identify Soviet and US individual weapons | 91 | 58 | 20 | 4 | 9 | 151 | 115 | 17 | 9 | 10 |
| Perform ECCM | 93 | 73 | 10 | 5 | 5 | 147 | 121 | 15 | 5 | 6 |
| Perform hoist operations | 91 | 80 | 4 | 2 | 5 | 149 | 134 | 10 | 1 | 4 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TACTICAL TASKS cont'd** | | | | | | | | | | |
| Prepare for night flight/ operations | 93 | 28 | 15 | 8 | 42 | 148 | 66 | 45 | 15 | 22 |
| Perform CEOI | 92 | 28 | 13 | 12 | 39 | 151 | 70 | 34 | 14 | 33 |
| Call for/adjust artillery/ mortar fire | 92 | 68 | 15 | 2 | 7 | 149 | 122 | 11 | 10 | 6 |
| Perform FARRP operations | 89 | 33 | 8 | 5 | 43 | 148 | 81 | 17 | 10 | 40 |
| Perform route reconnaissance | 90 | 31 | 23 | 5 | 31 | 151 | 80 | 35 | 14 | 22 |
| Perform area reconnaissance | 91 | 27 | 17 | 9 | 38 | 151 | 69 | 36 | 17 | 29 |
| Perform FM homing | 92 | 53 | 15 | 10 | 14 | 149 | 113 | 21 | 6 | 9 |
| Perform helicopter masking and unmasking | 88 | 21 | 22 | 5 | 40 | 148 | 69 | 31 | 10 | 38 |
| Use M-24 protective mask during flight | 94 | 63 | 20 | 5 | 6 | 150 | 124 | 19 | 4 | 3 |
| Complete after action report | 94 | 56 | 14 | 6 | 18 | 152 | 103 | 23 | 9 | 17 |
| Submit reports and/or debriefings, (oral or written) to the Operations (or S-2) Officer | 93 | 51 | 16 | 6 | 20 | 150 | 108 | 19 | 11 | 12 |
| Demonstrate knowledge of survival, evasion, resistance and escape techniques | 93 | 74 | 14 | 2 | 3 | 148 | 116 | 23 | 6 | 3 |
| Operate emergency radio | 88 | 69 | 11 | 4 | 4 | 151 | 120 | 25 | 4 | 2 |
| Demonstrate use of aircraft survivability equipment | 92 | 70 | 10 | 6 | 6 | 148 | 119 | 18 | 2 | 9 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| NIGHT TASKS | | | | | | | | | | |
| Perform autorotations from hover | 87 | 76 | 4 | 2 | 5 | 147 | 124 | 12 | 5 | 6 |
| Perform low level autorotation | 91 | 77 | 7 | 2 | 5 | 147 | 122 | 13 | 3 | 9 |
| Perform standard autorotation | 86 | 72 | 6 | 4 | 4 | 141 | 114 | 14 | 5 | 8 |
| Perform approach to minimum lighted area | 91 | 20 | 10 | 12 | 49 | 150 | 72 | 36 | 19 | 23 |
| Perform visual glide slope approach and landing | 92 | 49 | 17 | 5 | 21 | 146 | 113 | 15 | 6 | 12 |
| Perform low level flight | 94 | 28 | 13 | 6 | 47 | 148 | 67 | 34 | 12 | 35 |
| Perform contour flight | 93 | 38 | 13 | 3 | 39 | 149 | 80 | 26 | 12 | 31 |
| Perform NOE flight | 93 | 56 | 9 | 3 | 25 | 150 | 106 | 13 | 8 | 23 |
| Perform night operations | 90 | 21 | 14 | 12 | 43 | 152 | 70 | 40 | 10 | 32 |
| Perform takeoff to a hover (NH) | 81 | 46 | 11 | 5 | 19 | 140 | 75 | 29 | 9 | 27 |
| Perform landing to a hover (NH) | 87 | 51 | 9 | 5 | 22 | 146 | 70 | 35 | 11 | 30 |
| Perform hovering turns (NH) | 87 | 50 | 8 | 7 | 22 | 149 | 73 | 35 | 9 | 32 |
| Perform sideward and rearward hovering flight (NH) | 88 | 54 | 11 | 5 | 18 | 149 | 76 | 37 | 8 | 28 |
| Perform takeoff | 88 | 45 | 10 | 6 | 27 | 149 | 68 | 38 | 7 | 36 |
| Perform approach | 88 | 45 | 9 | 8 | 26 | 147 | 66 | 36 | 8 | 37 |
| Perform shallow approach to a running landing | 86 | 72 | 4 | 6 | 4 | 146 | 114 | 19 | 6 | 7 |
| Perform simulated hydraulic failure | 86 | 78 | 4 | 3 | 1 | 146 | 118 | 17 | 6 | 5 |
| Perform confined area operations | 87 | 51 | 9 | 8 | 19 | 147 | 96 | 23 | 9 | 19 |
| Perform pinnacle and ridgeline operations | 87 | 69 | 7 | 3 | 8 | 149 | 123 | 13 | 5 | 8 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **NIGHT VISION GOGGLE TASKS** | | | | | | | | | | |
| Perform preflight check | 79 | 78 | 1 | 0 | 0 | 140 | 131 | 6 | 2 | 1 |
| Perform takeoff to hover | 85 | 84 | 1 | 0 | 0 | 148 | 138 | 4 | 2 | 4 |
| Perform landing from hover | 84 | 82 | 2 | 0 | 0 | 148 | 138 | 4 | 2 | 4 |
| Perform hovering | 85 | 83 | 2 | 0 | 0 | 148 | 138 | 5 | 1 | 4 |
| Perform airwork/traffic pattern | 84 | 82 | 2 | 0 | 0 | 145 | 137 | 3 | 2 | 3 |
| Perform takeoff | 84 | 83 | 1 | 0 | 0 | 144 | 135 | 4 | 1 | 4 |
| Perform approach | 90 | 88 | 2 | 0 | 0 | 147 | 137 | 4 | 1 | 5 |
| Perform low level autorotation | 88 | 87 | 1 | 0 | 0 | 148 | 140 | 4 | 1 | 3 |
| Perform NVG failure | 89 | 87 | 2 | 0 | 0 | 147 | 140 | 4 | 1 | 2 |
| Perform IMC procedure | 89 | 88 | 1 | 0 | 0 | 150 | 142 | 3 | 1 | 4 |
| Perform terrain flight operations | 87 | 85 | 2 | 0 | 0 | 149 | 141 | 3 | 2 | 3 |
| Perform terrain flight navigation | 88 | 87 | 1 | 0 | 0 | 148 | 143 | 2 | 1 | 2 |
| Perform terrain flight takeoff and approach | 89 | 87 | 2 | 0 | 0 | 148 | 140 | 4 | 1 | 3 |
| Perform hovering in- and out-of-ground effect | 89 | 87 | 2 | 0 | 0 | 148 | 140 | 4 | 1 | 3 |
| Perform NOE quick stop/ deceleration | 90 | 88 | 2 | 0 | 0 | 150 | 145 | 3 | 0 | 2 |
| **UTILITY TASKS** | (Utility aviators) | | | | | (Utility Track aviators) | | | | |
| Perform external load missions (day) | 56 | 28 | 6 | 3 | 19 | 91 | 67 | 11 | 3 | 10 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **UTILITY TASKS cont'd** | | | | | | | | | | |
| Perform internal load missions (day) | 60 | 6 | 4 | 6 | 44 | 92 | 26 | 9 | 8 | 49 |
| Perform internal load missions (night) | 60 | 14 | 4 | 5 | 37 | 93 | 48 | 16 | 10 | 19 |
| Perform rappelling missions | 59 | 39 | 9 | 4 | 7 | 96 | 79 | 9 | 2 | 6 |
| Perform pinnacle takeoff | 59 | 19 | 11 | 6 | 23 | 93 | 47 | 20 | 3 | 23 |
| Perform formation takeoff | 61 | 8 | 6 | 4 | 43 | 94 | 30 | 14 | 8 | 42 |
| Perform formation landing | 62 | 9 | 7 | 4 | 42 | 95 | 34 | 13 | 8 | 40 |
| Perform external load emergency procedures | 61 | 49 | 4 | 2 | 6 | 95 | 77 | 9 | 2 | 7 |
| Conduct an air movement | 60 | 20 | 5 | 5 | 30 | 94 | 49 | 10 | 6 | 29 |
| Perform landing zone reconnaissance | 62 | 17 | 14 | 5 | 26 | 92 | 41 | 16 | 6 | 29 |
| **AEROSCOUT TASKS** | (Transitioned Aeroscout aviators | | | | | (Aeroscout Track aviators) | | | | |
| Select/recommend landing zone | 21 | 9 | 3 | 0 | 9 | 53 | 26 | 9 | 9 | 9 |
| Select assembly areas | 20 | 10 | 6 | 1 | 3 | 55 | 34 | 10 | 4 | 7 |
| Select/recommend holding areas | 21 | 11 | 2 | 2 | 6 | 54 | 30 | 10 | 3 | 11 |
| Select terrain flight routes for air elements | 21 | 12 | 4 | 2 | 3 | 54 | 29 | 12 | 5 | 8 |
| Select attack positions for attack helicopters | 21 | 10 | 2 | 1 | 8 | 55 | 26 | 11 | 6 | 12 |
| Perform screening mission | 21 | 13 | 1 | 1 | 6 | 54 | 32 | 11 | 5 | 6 |

GRADUATE FREQUENCY OF PERFORMANCE IN MISSION TRAINING BY TASK

| AVIATOR TASK | 180/20 TOTAL RESP. | 180/20 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 | 175/40 TOTAL RESP. | 175/40 TIMES PERFORMED 0 | 1-5 | 6-10 | >10 |
|---|---|---|---|---|---|---|---|---|---|---|
| AEROSCOUT TASKS cont'd | | | | | | | | | | |
| Designate attack helicopter targets | 21 | 10 | 1 | 2 | 8 | 55 | 30 | 7 | 8 | 10 |
| Provide security during attack | 21 | 12 | 3 | 1 | 5 | 55 | 33 | 6 | 6 | 10 |
| Perform tactical movement techniques | 20 | 8 | 4 | 3 | 5 | 53 | 21 | 9 | 8 | 15 |
| Call and control TAC airstrikes | 21 | 12 | 2 | 2 | 5 | 55 | 46 | 8 | 0 | 1 |
| Transmit information using visual signaling techniques | 21 | 17 | 2 | 1 | 1 | 55 | 43 | 7 | 3 | 2 |
| Report reconnaissance data used for classification of roads and bridges | 21 | 13 | 3 | 2 | 3 | 53 | 33 | 12 | 5 | 3 |
| Perform zone reconnaissance | 21 | 11 | 3 | 3 | 4 | 54 | 27 | 11 | 6 | 10 |
| Select/recommend entry/exit routes | 21 | 13 | 3 | 3 | 2 | 54 | 35 | 10 | 3 | 6 |
| Identify primary front line units by type and number of personnel and equipment | 21 | 14 | 4 | 0 | 3 | 54 | 44 | 6 | 3 | 1 |
| Detect enemy camouflage and concealment | 21 | 12 | 3 | 0 | 6 | 55 | 38 | 7 | 3 | 7 |

# APPENDIX I

## GRADUATE, UNIT IP, AND SUPERVISOR NARRATIVE RESPONSES

# APPENDIX I
# GRADUATE, UNIT IP, AND SUPERVISOR NARRATIVE RESPONSES

## GRADUATE QUESTIONNAIRE

The Graduate Field Questionnaire, Section III, requested narrative style responses. The Section III questions were:

A. List five tasks/skills (from the list of 140 critical aviator tasks) that you feel are in greatest need of additional emphasis at Ft. Rucker.

B. List any additional tasks/skills that were not among the 140 that you feel should be taught at Ft. Rucker

C. List five tasks/skills (from the list of 140) that you feel could best be eliminated from Ft. Rucker.

D. List any additional comments you may have.

## UNIT IP QUESTIONNAIRE

The IP Field Questionnaire, Section III also requested narrative style responses. These questions were:

A. Same as Graduate A. except the IP list of critical tasks contained 95 items.

B. Same as Graduate B. except from the list of 95

C. Same as Graduate C. except from the list of 95

D. In what aspect of threat doctrine are new graduates best and least prepared?

E. What tasks cannot be performed in your unit training program because of local constraints/restrictions?

F. List the two areas of unit training for new graduates that require the greatest amount of your unit training time.

SUPERVISOR QUESTIONNAIRE

The Supervisor Field Questionnaire, Section III likewise requested narrative style responses. These questions were:

A. Same as Graduate A. except using the list of 30 critical mission tasks/areas.

B. Same as Graduate B. except from the list of 30.

C. Same as Graduate C. except from the list of 30.

D. Same as Unit IP E.

E. Same as Unit IP F. except to achieve ARTEP III instead of IP training time.

F. Same as Unit IP D.

G. What are the advantages of the dual track Aeroscout graduate compared to the current transitioned OH-58 aviator to your unit?

H. Same as G. except list disadvantages.

GRADUATE NARRATIVE RESPONSES
RANK ORDERED BY FREQUENCY (%)

QUESTION A: "List 5 tasks/skills (from the list of 140) that you feel are in greatest need of additional emphasis at Ft. Rucker."

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 100 | | | 175/40 Utility N = 100 | | | 175/40 Aeroscout N = 58 | | |
| | f | % | | f | % | | f | % |
| Perform preflight inspection | 28 | 28 | Perform external load mission (day) | 30 | 30 | Designate attack helicopter targets | 16 | 28 |
| Perform night operations | 27 | 27 | Perform internal load mission (day) | 23 | 23 | Operate SIF/IFF equipment | 11 | 19 |
| Perform internal load missions (day) | 20 | 20 | Perform pinnacle approach & landing | 23 | 23 | Perform pinnacle approach & landing | 11 | 19 |
| Perform emergency procedures for anti-torque malfunctions | 18 | 18 | Perform preflight inspection | 20 | 20 | Select attack positions for attack helicopters | 10 | 17 |
| Perform NOE flight (night) | 17 | 17 | Perform pinnacle takeoff | 18 | 18 | Transmit information using visual signaling technique | 10 | 17 |
| Night vision goggles operations | 15 | 15 | Perform emergency for antitorque malfunction | 17 | 17 | Perform pinnacle takeoff | 9 | 16 |

RESPONSES

| 180/20 N = 100 | | | 175/40 Utility N = 100 | | | 175/40 AEROSCOUT N = 58 | | |
|---|---|---|---|---|---|---|---|---|
| | f | % | | f | % | | f | % |
| Perform external load mission (day) | 15 | 15 | Perform weight and balance computation | 17 | 17 | Utilize map for navigation | 9 | 16 |
| Perform contour flight | 15 | 15 | Perform formation landings | 16 | 16 | Night vision goggles operation | 8 | 14 |
| Demonstrate knowledge of S.E.R.E. | 15 | 15 | Perform formation takeoff | 13 | 13 | Perform NOE flight (day) | 8 | 14 |
| Perform formation landings | 13 | 13 | Night vision goggles operations | 11 | 11 | Plan and perform tactical instrument approaches and landings | 8 | 14 |
| Perform NOE flight (day) | 13 | 13 | Conduct an air movement | 11 | 11 | Call for and adjust artillery/mortar fire | 8 | 14 |
| Perform approach to minimum lighted area | 13 | 13 | Plan a daylight terrain flight mission | 11 | 11 | Perform emergency procedures | 8 | 14 |
| Use M-24 protective mask during terrain flight | 13 | 13 | Perform internal load mission (night) | 10 | 10 | Perform autorotation with turn | 8 | 18 |
| Perform autorotation turn (day) | 12 | 12 | | | | Demonstrate knowledge of S.E.R.E. | 8 | 14 |
| Perform visual glide slope approach and landing | 12 | 12 | | | | Perform aerial radio relay | 7 | 12 |

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 100 | | | 175/40 Utility N = 100 | | | 175/40 Aeroscout N = 58 | | |
| | f | % | | f | % | | f | % |
| Conduct an air movement | 10 | 10 | | | | Perform ECCM | 7 | 12 |
| Plan a daylight terrain flight mission | 10 | 10 | | | | Perform preflight inspection | 7 | 12 |
| Operate SIF/IFF equipment | 10 | 10 | | | | Autorotation maneuvers | 6 | 10 |
| Perform CEOI | 10 | 10 | | | | Detect enemy camouflage and concealment | 6 | 10 |
| Perform emergency procedures for governor control malfunction | 10 | 10 | | | | | | |

COMMENTS ON QUESTION A: The following notes are summaries extracted from specific item comments or general comments section of the Graduate Questionnaire.

Weight and balance - Instruction not adequate, not able to compute after arrival at unit.

Preflight inspection - Unable to perform proper preflight after graduation, need more information on how to inspect main and tail rotor system and need to be able to open cowlings to inspect aircraft properly.

Pinnacle operations - Cannot perform pinnacle operations on operational missions after graduation.

COMMENTS ON QUESTION A (cont'd)

Communications - Unsure of required communications for both IFR/VFR flights, need to perform actual communications during training. Lack confidence.

Emergency procedures - Lack confidence and knowledge of how to contend with inflight emergencies (day and night) other than standard autorotation.

Autorotation with turns - Cannot perform on arrival in unit and require extensive training.

Premission planning - Need more practice at total mission planning and application of plan on actual training flights (include weather planning, coordination, flight routes, etc.)

NOE - Not enough student hands on flight time and practice.

Tac instruments - Training inadequate, unrealistic, lack confidence upon graduation, unable to perform at unit, Tac instruments are dangerous and unrealistic in high threat environment.



Tactics - Many of the tasks listed under TACTICS were not discussed or performed.

S.E.R.E. - Classroom instruction not adequate, should have PE.

Night - Need more practice with night maneuvers and night non-standards.

NVG - NVG are available in units, IP's not qualified in units, training at Rucker not adequate for proficiency, NVG are dangerous, eliminate training until NVG are available and improved. Use time to improve aircraft skills.

Internal/External loads - Need to fly at or near max gross with internal loads both normal flight and terrain flight (this is a unit requirement for UH-1 pilots). Need to actually carry external loads.

Scouts - Need to transition earlier into the OH-58, need more emergency procedures, need to work with attack helicopters, more actual PE of scout tasks in aircraft. Field units need to know what USAAVNC Scout Track pilot is capable of, some did not know at all, others expected too much,

COMMENTS ON QUESTION A (cont'd)

Scouts (cont'd)

others did not care (assigned to fly UH-1). Many Scout pilots felt they were under trained in the UH-1 since they are required to fly them in units.

QUESTION B: List any additional tasks/skills that were not among the 140 that you feel should be taught at Ft. Rucker.

RESPONSES

| 180/20 N = 100 | | | 175/40 Utility N = 100 | | | 175/40 Aeroscout N = 58 | | |
|---|---|---|---|---|---|---|---|---|
| | f | % | | f | % | | f | % |
| Formation flying | 18 | 18 | VFR cross country and navigation | 21 | 21 | Aircraft maintenance | 10 | 17 |
| Aircraft maintenance | 13 | 13 | Formation flights | 13 | 13 | Larger ratio maps | 7 | 12 |
| VFR cross country flights and navigation | 13 | 13 | Aircraft maintenance | 12 | 12 | VFR cross country flights | 6 | 10 |
| Night emergencies | 12 | 12 | Use of large ratio in map reading | 10 | 10 | Night NOE | 6 | 10 |

COMMENTS ON QUESTION B:

Maintenance - Need more comprehensive maintenance training program, those items a pilot needs to know about aircraft systems as they relate to cockpit control and information about MOC's, PMI's, Daily's, aircraft servicing requirements, an overview of crew chief responsibilities and capability.

COMMENTS ON QUESTION B (cont'd)

Maintenance (cont'd)

Many crew chiefs are recent school graduates, combined with new aviators the combination is dangerous.

VFR cross country flights - Initially incapable and incompetent to conduct VFR cross country flight, airport to airport or point to point (navigation, communications, planning, and filing flight plans).

Formation flights - Many units are still flying formation and recent graduates lack knowledge, experience, confidence.

Map reading - Need to know more about how to read VFR maps, tactical maps, (overlays, symbols, etc.) 1:50,000; 1:100,000 and 1:250,000.

Radio silence operations - Need to know more about flight operations and procedures during periods of radio silence--visual signals, etc.

ICAO, REGS, etc. - Students on orders for overseas assignments need instruction on the rules in that theatre of operations (regs, flight planning, etc.)

TOE aviation units - Need to know more about organization, structure, missions, etc.

All aviators need to know more about what to expect on arrival in a new unit specifically roles of individuals WO's vs. commissioned aviators, additional duty requirements, military development, personnel management, financial management. Eliminate misconceptions about what Army aviators are expected to do and how they perform as soldiers. This will relieve the cultural shock most experience in first assignment.

QUESTION C: List the 5 tasks/skills (from the list of 140) that you feel could best be eliminated from Ft. Rucker rotary wing training.

RESPONSES

| 180/20 N = 100 | | | 175/40 Utility N = 100 | | | 175/40 Aeroscout N = 58 | | |
|---|---|---|---|---|---|---|---|---|
| | f | % | | f | % | | f | % |
| Plan and perform instrument flights | 10 | 10 | Night vision goggles operations | 18 | 18 | Night vision goggles operations | 15 | 26 |

ADDITIONAL COMMENTS BY RECENT GRADUATES

Unit training inadequate. Very little flight training, unit training provided new aviators (4-8 hours a month unstructured time). N=18

Students should be provided an orientation of what to expect at the units. N=13

SFTS should be continuous through the first part of the instrument phase and then receive aircraft training prior to checkride. N=23

The Scout Track should start one stage earlier, i.e., NVG and NH should be in the OH-58. N=8

IP's at Rucker should permit (require) students to use radios. N=18

Unit training is in direct conflict with Rucker training. N=8

IP NARRATIVE RESPONSES
RANK ORDERED BY FREQUENCY (%)

QUESTION A: List the 5 tasks/skills (from the list of 95) that you feel are in greatest need of additional emphasis at Ft. Rucker.

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
| | f | % | | f | % | | f | % |
| Autorotations | 35 | 45 | Night operations | 18 | 18 | Night operations | 8 | 24 |
| Night operations | 32 | 42 | Antitorque failures | 15 | 15 | Antitorque failure | 7 | 21 |
| Antitorque failures | 25 | 32 | Formation flights | 14 | 14 | Autorotations | 7 | 21 |
| NOE operations | 23 | 30 | Autorotations | 13 | 13 | Basic flight skills | 5 | 15 |
| Tac instruments | 20 | 26 | NOE operations | 10 | 10 | Scout tasks | 5 | 15 |
| Basic flight skills | 17 | 22 | | | | NOE operations | 4 | 12 |
| Preflight maintenance | 13 | 17 | | | | Preflight maintenance | 4 | 12 |
| Formation flights | 10 | 13 | | | | | | |
| Terrain flights | 9 | 12 | | | | | | |

QUESTION B: List any additional tasks/skills that were not among the 95 that you feel should be taught at Ft. Rucker.

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
| | f | % | | f | % | | f | % |
| Left seat flying | 3 | 4 | FARRP operations | 3 | 3 | Mountain flying | 3 | 9 |

QUESTION C: List the 5 tasks/skills (from the list of 95) that you feel could best be eliminated from Ft. Rucker training.

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
| | f | % | | f | % | | f | % |
| NVG | 9 | 12 | NVG | 7 | 7 | None | | |
| | | | Tac instruments | 7 | 7 | | | |

QUESTION D: In what aspects of threat doctrine are new graduates best and least prepared?

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
| | f | % | | f | % | | f | % |
| Best: | | | | | | | | |
| NOE | 12 | 16 | NOE | 6 | 6 | Threat ID | 9 | 26 |
| Threat ID | 10 | 13 | | | | NOE | 4 | 12 |
| Least: | | | | | | | | |
| Threat ID | 18 | 23 | Threat ID | 13 | 13 | SERE | 4 | 12 |
| SERE | 12 | 16 | | | | | | |



Question E: What tasks cannot be performed in your unit training program because of local constraints/restrictions?

| RESPONSES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
| | f | % | | f | % | | f | % |
| Night vision goggles | 61 | 29 | None | | | None | | |
| Night autorotations | 36 | 17 | | | | | | |
| Night nonstandards | 22 | 10 | | | | | | |

Question F: List the two areas of unit training for new graduates that require the greatest amount of your unit training time.

RESPONSES

| 180/20 N = 77 | | | 175/40 Utility N = 102 | | | 175/40 Aeroscout N = 34 | | |
|---|---|---|---|---|---|---|---|---|
| | f | % | | f | % | | f | % |
| Tactical mission unit training | 46 | 60 | Tactical mission unit training | 27 | 27 | Basic flight skills | 8 | 24 |
| Basic flight skills | 20 | 26 | Basic flight skills | 8 | 8 | Tactical mission unit training | 7 | 21 |

*SUPERVISOR NARRATIVE RESPONSES*
RANK ORDERED BY FREQUENCY (%)

(N = 193)

QUESTION A: Using the list of 30 tasks/skills as a base, list the 5 tasks/skills that you are in greatest need of additional emphasis in Ft. Rucker training.

| RESPONSES: | f | % |
|---|---|---|
| Perform NOE flight (night) | 75 | 39 |
| Transport internal loads | 53 | 27 |
| Perform NOE flight (day) | 51 | 26 |
| Perform contour flight (night) | 44 | 23 |
| Perform low level flight (night) | 42 | 22 |
| Prepare for tactical instrument flight mission and takeoff | 41 | 21 |
| Use indirect fire support | 40 | 21 |
| Conduct coordination of combat troops movement | 38 | 20 |
| Transport external loads | 36 | 19 |
| Plan night terrain flight mission | 34 | 18 |
| Conduct movement of combat troops | 33 | 17 |
| Acquire and identify targets | 29 | 15 |
| Plan day terrain flight mission | 28 | 15 |
| Plan day contour flight | 25 | 13 |
| Target handoff/security | 19 | 10 |

QUESTION B: List any additional tasks/skills not among the 30 that you feel should be taught at Ft. Rucker.

| RESPONSES: | | |
|---|---|---|
| Instrument flight planning | 28 | 15 |
| Preflight maintenance | 25 | 13 |
| Navigation/map reading | 21 | 11 |
| Load operations (night and day to include weight and balance) | 19 | 10 |

QUESTION C: List 5 tasks/skills (from the 30) that you feel could best be eliminated from Ft. Rucker training.

| RESPONSES: | f | % |
|---|---|---|
| Submitting reports | 19 | 10 |

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QUESTION D: What tasks of the 30 cannot be performed in your unit training program because of local constraints/restrictions?

| RESPONSES: | | |
|---|---|---|
| Perform night NOE flights | 53 | 27 |
| Employ TAC air | 38 | 20 |
| Enroute flight approach and landing | 20 | 11 |

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Question E. List the two areas of unit training for new graduates that require the greatest amount of time to achieve ARTEP III level performance.

| RESPONSES: | | |
|---|---|---|
| Night operations | 40 | 21 |
| NOE flight/navigation | 23 | 12 |

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QUESTION F: In what aspects of threat doctrine are new graduate aviators best and least prepared?

| RESPONSES: | | |
|---|---|---|
| Best: | | |
| Enemy identification | 46 | 24 |
| Air defense | 27 | 14 |
| Terrain flight | 23 | 12 |
| Least: | | |
| Enemy identification | 61 | 32 |
| Threat tactics | 49 | 25 |
| Air defense | 37 | 19 |
| Threat doctrine | 25 | 13 |

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The following comments are narrative summaries of questions G and H of the Supervisors Questionnaire. These questions were addressed to supervisors of Scout pilots only. There were a total of 19 responses, four of whom elected to respond "no comment." The responses of the remaining 15 following:

QUESTION G: What are the advantages of the dual-track Aeroscout graduate compared to the current transitioned OH-58 pilot to your unit?

RESPONSES:

1. Individual is qualified in the aircraft on arrival in the unit saving ACFT and IP training time (approximately 10-20 hours).

2. Saving on flight transition time allows more time for mission type training. Individual is ready for single pilot, observer, and scout NOE training.

3. New aviators knowledgeable in threat ID and TACTICS and prepared for tactical training.

4. Available for immediate employment into unit mission.

5. As OH-58A pilots, they are competitive with most unit transitioned aviators.

6. The new aviator comes to us with a better attitude, i.e., he knows he has been trained.

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QUESTION H: What are the disadvantages of the dual-track Aersocout graduate compared to the current transitioned OH-58 pilot to your unit?

RESPONSES:

1. None.

2. None-as long as they remain Scout pilots.

3. Many of the dual track OH-58 graduates are not being used as Scout pilots.

4. Pilots consider themselves strictly Scout pilots.

5. Unit flexibility is lost (cannot utilize Scouts as utility pilots).

6. Lack of a broad base of knowledge.

# APPENDIX J

## INSTITUTIONAL
## FLIGHT INSTRUCTIONAL PERSONNEL
## QUESTIONNAIRE

APPENDIX J

INSTITUTIONAL
FLIGHT INSTRUCTIONAL PERSONNEL
QUESTIONNAIRE

In addition to the three field questionnaires, the 175/40 IERW evaluation effort also included two institutional questionnaires, one for flight instructional personnel (N=295) and one for academic personnel (N=40). The data presented in this appendix are derived from the former.

Section I of the flight questionnaire contained 145 aviator tasks/skills, 138 of which were common to the list of critical tasks used for the Graduates and IP questionnaires (those tasks marked with an asterisk (*) were not included on the Graduate questionnaire.) These tasks were listed in seven general topical areas (Basic, Instruments, Tactics, Night, NVG, Utility, and Aeroscout). The respondent was asked to respond only to those tasks with which he was having or had had instructional experience, with regard to the sufficiency of instructional time allocated for each maneuver. Sufficiency was rated with reference to allowing the trainee to attain proficiency as defined by the standards listed in the Flight Training Guide. The first four categories of responses ranged from "Not at all sufficient" to "Very sufficient" with the fifth category reserved for the "Not sure" or noncommitted response.

Section II requested opinions from the respondents based on the following questions:

A. List five aviator tasks (from the list of 145) that are in greatest need of additional emphasis during flight training.

B. List any aviator tasks that should be but are not listed among the 145.

C. List five aviator tasks (from the list of 145) that should be eliminated from flight training.

D. What are your feelings or comments on the following topics:

1. Proficiency training

2. Self-paced training

3. Letter grades

4. Number grades

5. Pass/fail grades

6. Plus/minus grades

7. Flight time grades

8. Honor graduates

9. IP availability

10. Sequence of phases within the course

11. Sequence of tasks within the phases

12. FTG allotted time per maneuver

13. IP's having say-so concerning SP elimination

14. Elimination of SP under present system

15. Utilization of weather days

16. Student proficiency when reaching your phase

17. Training to a flight level vs. a proficiency level

18. How different IPs grade the same SP on the same maneuver

19. Should FTG have allowances for weather day

E. Any additional comments.

Responses for questions A, B, and C greater than 10% are listed in rank order.

INSTITUTIONAL
FLIGHT INSTRUCTIONAL PERSONNEL
QUESTIONNAIRE, SECTION I

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| BASIC TASKS | f | % | f | % | f | % | f | % |
| Premission planning | 11 | 5 | 40 | 16 | 91 | 37 | 101 | 42 |
| Using required publications | 9 | 4 | 35 | 14 | 120 | 48 | 86 | 34 |
| Perform aircraft mission mission briefing | 10 | 5 | 42 | 19 | 100 | 44 | 73 | 32 |
| Plan a VFR flight | 36 | 19 | 34 | 18 | 59 | 31 | 63 | 33 |
| Plan an IFR flight | 15 | 11 | 27 | 19 | 49 | 35 | 49 | 35 |
| Compute weight and balance | 56 | 31 | 45 | 25 | 58 | 33 | 19 | 11 |
| File flight plan | 31 | 17 | 30 | 16 | 58 | 32 | 63 | 35 |
| Perform preflight inspection | 8 | 3 | 20 | 7 | 56 | 20 | 196 | 70 |
| Perform engine run-up | 3 | 1 | 16 | 6 | 57 | 20 | 206 | 73 |
| Perform aircraft hover/taxi | 3 | 1 | 7 | 3 | 53 | 20 | 204 | 76 |
| Perform power checks | 3 | 1 | 9 | 3 | 56 | 21 | 198 | 75 |
| Perform normal takeoff from ground | 12 | 6 | 7 | 3 | 55 | 25 | 144 | 66 |
| Perform normal takeoff from hover | 4 | 2 | 8 | 3 | 51 | 22 | 172 | 73 |
| Perform normal takeoff to hover | 1 | 1 | 7 | 3 | 56 | 24 | 164 | 72 |
| Perform confined area takeoff | 37 | 20 | 26 | 14 | 56 | 30 | 69 | 36 |
| Perform maximum performance takeoff | 6 | 3 | 18 | 8 | 66 | 31 | 126 | 58 |
| Perform basic flight maneuvers | 13 | 5 | 23 | 9 | 72 | 30 | 136 | 56 |
| Perform normal approach to hover | 5 | 2 | 16 | 7 | 62 | 27 | 147 | 64 |
| Perform normal approach to ground | 13 | 7 | 16 | 8 | 70 | 35 | 101 | 50 |
| Perform shallow approach to running landing | 24 | 12 | 27 | 14 | 68 | 34 | 81 | 40 |
| Perform confined area approach and landing | 46 | 26 | 31 | 17 | 50 | 28 | 53 | 29 |
| Perform pinnacle approach and landing | 55 | 32 | 38 | 22 | 48 | 28 | 30 | 18 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| BASIC TASKS cont'd | f | % | f | % | f | % | f | % |
| Perform steep approach and landing | 9 | 4 | 15 | 7 | 80 | 38 | 105 | 51 |
| Perform engine failure emergency procedures | 8 | 3 | 34 | 13 | 96 | 37 | 123 | 47 |
| Perform engine fire emergency procedures | 16 | 7 | 42 | 19 | 99 | 44 | 69 | 30 |
| Perform hydraulic system failure emergency procedures | 7 | 3 | 20 | 10 | 60 | 29 | 121 | 58 |
| Perform governor failure emergency procedures | 21 | 12 | 36 | 21 | 66 | 38 | 51 | 29 |
| Perform antitorque emergency procedures | 28 | 13 | 49 | 23 | 86 | 40 | 54 | 24 |
| Perform any emergency procedure | 10 | 4 | 28 | 12 | 96 | 41 | 99 | 43 |
| Perform autorotation from hover | 9 | 4 | 6 | 3 | 74 | 33 | 134 | 60 |
| Perform autorotation during takeoff* | 72 | 49 | 16 | 11 | 27 | 18 | 32 | 22 |
| Perform low level autorotation | 22 | 14 | 13 | 8 | 42 | 26 | 85 | 52 |
| Perform standard autorotation | 6 | 3 | 13 | 6 | 71 | 32 | 134 | 59 |
| Perform autorotation | 41 | 19 | 66 | 31 | 57 | 27 | 51 | 23 |
| with turn | 41 | 19 | 66 | 31 | 57 | 27 | 51 | 23 |
| INSTRUMENT TASKS | | | | | | | | |
| Perform instrument takeoff | 9 | 7 | 27 | 21 | 53 | 40 | 42 | 32 |
| Perform ADF approach | 3 | 2 | 19 | 15 | 54 | 44 | 48 | 39 |
| Perform VOR approach | 3 | 3 | 20 | 17 | 46 | 40 | 47 | 40 |
| Perform ILS approach | 4 | 4 | 20 | 18 | 48 | 42 | 41 | 36 |
| Perform GCA approach | 3 | 2 | 12 | 10 | 48 | 38 | 63 | 50 |
| Perform VOR navigation/ tracking | 4 | 4 | 11 | 10 | 48 | 42 | 51 | 44 |
| Perform ADF navigation/ tracking | 5 | 4 | 12 | 10 | 56 | 44 | 53 | 42 |
| Perform FM homing procedures | 14 | 13 | 16 | 14 | 42 | 38 | 39 | 35 |
| Perform holding procedures | 4 | 3 | 20 | 17 | 52 | 45 | 40 | 35 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| INSTRUMENT TASKS cont'd | f | % | f | % | f | % | f | % |
| Perform unusual attitude recovery | 10 | 8 | 17 | 13 | 67 | 52 | 36 | 27 |
| Perform lost communications procedures | 6 | 4 | 29 | 18 | 69 | 42 | 61 | 36 |
| Communication with ground agencies while on IFR/VFR flight | 16 | 9 | 31 | 17 | 71 | 40 | 61 | 34 |
| Perform vertical (inadvertent) IMC) helicopter IFR procedures | 13 | 16 | 12 | 15 | 31 | 38 | 26 | 31 |
| TACTICAL TASKS | | | | | | | | |
| Perform terrain flight mission | 9 | 8 | 8 | 7 | 29 | 27 | 62 | 58 |
| Coordinate with supported units | 23 | 27 | 22 | 26 | 21 | 24 | 20 | 23 |
| Perform low level flight | 12 | 11 | 8 | 7 | 24 | 22 | 63 | 60 |
| Perform contour flight | 10 | 10 | 9 | 9 | 19 | 19 | 62 | 62 |
| Perform NOE flight | 8 | 8 | 11 | 11 | 29 | 28 | 56 | 53 |
| Perform aerial radio relay | 37 | 51 | 16 | 22 | 13 | 18 | 7 | 9 |
| Transmit Spot report | 23 | 29 | 22 | 28 | 18 | 23 | 17 | 20 |
| Perform quick stop | 23 | 15 | 25 | 16 | 51 | 34 | 53 | 35 |
| Conduct tactical flight for multiaircraft | 20 | 21 | 20 | 21 | 36 | 37 | 20 | 21 |
| Perform evasive maneuvers | 21 | 21 | 25 | 25 | 33 | 33 | 20 | 21 |
| Plan/perform tactical instrument flight | 21 | 19 | 28 | 26 | 36 | 33 | 23 | 22 |
| Plan/perform tactical instrument approach | 23 | 21 | 27 | 25 | 39 | 36 | 20 | 18 |
| Utilize map for navigation | 41 | 24 | 29 | 17 | 37 | 21 | 66 | 38 |
| Operate radar warning receiver AN/APR-39 in a threat environment | 41 | 72 | 4 | 7 | 5 | 9 | 7 | 12 |
| Operate IFF/SIF equipment | 48 | 46 | 15 | 14 | 19 | 18 | 23 | 22 |
| Identify enemy attack aircraft | 25 | 31 | 20 | 25 | 21 | 26 | 15 | 18 |
| Identify major allied equipment | 20 | 24 | 20 | 24 | 31 | 37 | 12 | 15 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| TACTICAL TASKS cont'd | f | % | f | % | f | % | f | % |
| Identify Soviet & US individual weapons | 20 | 23 | 25 | 29 | 30 | 34 | 12 | 14 |
| Perform ECCM | 16 | 18 | 26 | 29 | 31 | 34 | 18 | 19 |
| Utilize CEOI | 8 | 8 | 12 | 13 | 33 | 34 | 43 | 45 |
| Call for/adjust artillery/ mortar fire | 20 | 26 | 21 | 27 | 19 | 24 | 18 | 23 |
| Perform FARRP operations | 17 | 20 | 11 | 13 | 31 | 37 | 24 | 30 |
| Perform route reconnaissance | 7 | 7 | 16 | 16 | 37 | 37 | 41 | 40 |
| Perform area reconnaissance | 11 | 10 | 20 | 18 | 41 | 37 | 39 | 35 |
| Perform FM radio homing | 8 | 7 | 11 | 10 | 49 | 43 | 45 | 40 |
| Perf. heli. mask. & unmask. | 4 | 4 | 8 | 8 | 30 | 28 | 62 | 60 |
| Use M-24 protective mask during flight | 12 | 13 | 15 | 16 | 35 | 36 | 34 | 35 |
| Perform aircraft shutdown and inspection* | 1 | 1 | 8 | 4 | 43 | 19 | 175 | 76 |
| Complete after action report | 30 | 34 | 18 | 20 | 22 | 25 | 18 | 21 |
| Submit report and/or debriefings, (oral or written) to the Operations (or S-2) Officer | 36 | 42 | 18 | 21 | 22 | 26 | 9 | 11 |
| Perform downed aircraft procedures* | 16 | 13 | 37 | 29 | 46 | 36 | 28 | 22 |
| Describe survival, evasion, resistance, and escape techniques | 26 | 37 | 20 | 28 | 17 | 24 | 8 | 11 |
| Operate emergency radio | 33 | 26 | 36 | 29 | 37 | 30 | 19 | 15 |
| Describe aircraft survival equipment | 23 | 18 | 36 | 28 | 54 | 42 | 16 | 12 |
| Demonstrate first aid kit use* | 46 | 30 | 46 | 30 | 45 | 29 | 17 | 11 |
| Demonstrate first aid measures* | 51 | 43 | 39 | 33 | 17 | 14 | 11 | 10 |
| NIGHT TASKS | | | | | | | | |
| Perform autorotation from hover | 15 | 12 | 7 | 6 | 51 | 40 | 53 | 42 |
| Perform autorotation during takeoff* | 57 | 59 | 11 | 11 | 14 | 14 | 15 | 16 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| NIGHT TASKS cont'd | f | % | f | % | f | % | f | % |
| Perform low level autorotation | 17 | 15 | 12 | 10 | 35 | 30 | 53 | 45 |
| Perform standard autorotation | 18 | 14 | 14 | 11 | 45 | 35 | 53 | 40 |
| Perform a night flight mission* | 11 | 9 | 22 | 18 | 41 | 33 | 52 | 40 |
| Perform approach to minimum lighted area | 6 | 5 | 16 | 12 | 42 | 32 | 68 | 51 |
| Perform visual glide slope approach and landing | 11 | 9 | 27 | 23 | 44 | 38 | 35 | 30 |
| Perform low level flight | 22 | 25 | 18 | 21 | 29 | 33 | 18 | 21 |
| Perform contour flight | 31 | 40 | 14 | 18 | 21 | 27 | 12 | 15 |
| Perform NOE flight | 37 | 53 | 13 | 19 | 12 | 17 | 8 | 11 |
| Perform other night operations | 10 | 13 | 9 | 11 | 40 | 49 | 23 | 28 |
| Perform takeoff to a hover (NH) | 8 | 8 | 4 | 4 | 32 | 31 | 58 | 57 |
| Perform landing to a hover (NH) | 8 | 8 | 5 | 5 | 28 | 28 | 59 | 59 |
| Perform hovering turns (NH) | 8 | 8 | 4 | 4 | 29 | 29 | 60 | 59 |
| Perform sideward and rearward hovering turns (NH) | 10 | 10 | 10 | 10 | 33 | 33 | 47 | 47 |
| Perform takeoff | 9 | 7 | 5 | 4 | 42 | 32 | 77 | 57 |
| Perform approach | 10 | 7 | 7 | 5 | 53 | 38 | 70 | 50 |
| Perform shallow approach | 14 | 13 | 3 | 3 | 40 | 38 | 49 | 46 |
| Perform simulated hydraulic failure | 36 | 47 | 11 | 14 | 13 | 17 | 17 | 22 |
| Perform confined area operations | 23 | 22 | 21 | 20 | 37 | 35 | 25 | 23 |
| Perform pinnacle and ridgeline operations | 34 | 38 | 22 | 25 | 21 | 24 | 12 | 13 |
| NIGHT VISION GOGGLE (NVG) TASKS | | | | | | | | |
| Perform preflight checks | 11 | 12 | 11 | 12 | 35 | 38 | 35 | 38 |
| Perform takeoff to hover | 7 | 7 | 14 | 14 | 33 | 34 | 44 | 45 |
| Perform landing from hover | 7 | 7 | 12 | 13 | 34 | 35 | 43 | 45 |
| Perform hovering | 8 | 8 | 9 | 10 | 37 | 38 | 42 | 44 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| NVG cont'd | f | % | f | % | f | % | f | % |
| Perform airwork/traffic patterns | 9 | 10 | 10 | 10 | 35 | 36 | 42 | 44 |
| Perform takeoff | 10 | 11 | 9 | 9 | 32 | 34 | 44 | 46 |
| Perform approach | 9 | 10 | 9 | 10 | 35 | 37 | 41 | 43 |
| Perform low level autorotation | 12 | 14 | 10 | 12 | 25 | 29 | 38 | 45 |
| Perform NVG failure | 9 | 10 | 14 | 15 | 31 | 33 | 40 | 42 |
| Perform IMC procedure | 14 | 14 | 18 | 18 | 33 | 33 | 34 | 35 |
| Perform terrain flight operations | 27 | 42 | 5 | 8 | 19 | 30 | 13 | 20 |
| Perform terrain flight navigation | 31 | 53 | 5 | 8 | 14 | 23 | 9 | 16 |
| Perform terrain flight takeoff and approach | 20 | 34 | 7 | 12 | 21 | 36 | 10 | 18 |
| Perform hovering in- and out-of-ground effect | 18 | 33 | 8 | 15 | 17 | 32 | 11 | 20 |
| Perform NOE quick stop/ deceleration | 18 | 37 | 9 | 19 | 11 | 22 | 11 | 22 |
| UTILITY TASKS | | | | | | | | |
| Perform external load mission (day) | 13 | 15 | 21 | 24 | 35 | 40 | 18 | 21 |
| Perform internal load mission (day) | 9 | 10 | 20 | 23 | 34 | 39 | 25 | 28 |
| Perform internal load mission (night) | 18 | 24 | 21 | 28 | 18 | 24 | 17 | 24 |
| Perform rappelling mission | 27 | 34 | 30 | 38 | 14 | 18 | 8 | 10 |
| Perform pinnacle takeoff | 21 | 23 | 21 | 23 | 29 | 32 | 19 | 22 |
| Perform formation takeoff | 9 | 10 | 13 | 15 | 34 | 39 | 31 | 36 |
| Perform formation landings | 8 | 10 | 17 | 20 | 35 | 42 | 24 | 28 |
| Perform external load emergency procedures | 24 | 30 | 23 | 28 | 22 | 27 | 12 | 15 |
| Conduct an air movement | 15 | 20 | 26 | 35 | 22 | 30 | 11 | 15 |
| Perform landing zone reconnaissance | 4 | 5 | 13 | 15 | 34 | 40 | 35 | 40 |

| AVIATOR TASK | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| AEROSCOUT TASKS cont'd | f | % | f | % | f | % | f | % |
| Select/recommend landing zone | 2 | 10 | 3 | 14 | 7 | 33 | 9 | 43 |
| Select/recommend assembly areas | 4 | 19 | 2 | 10 | 7 | 33 | 8 | 38 |
| Select/recommend holding areas | 3 | 15 | 3 | 15 | 8 | 40 | 6 | 30 |
| Select terrain flight routes for air elements | 4 | 20 | 3 | 15 | 8 | 40 | 5 | 25 |
| Select attack position for attack helicopter | 3 | 15 | 2 | 10 | 10 | 50 | 5 | 25 |
| Perform screening mission | 3 | 15 | 3 | 15 | 6 | 30 | 8 | 40 |
| Designate attack helicopter targets | 3 | 15 | 3 | 15 | 9 | 45 | 5 | 25 |
| Provide security during attack | 3 | 15 | 4 | 20 | 6 | 30 | 7 | 35 |
| Perform tactical movement techniques | 4 | 17 | 4 | 17 | 10 | 43 | 5 | 23 |
| Call/control tactical air strikes | 15 | 71 | 3 | 14 | 2 | 10 | 1 | 5 |
| Transmit information using visual signaling techniques | 10 | 46 | 8 | 36 | 4 | 18 | 0 | 0 |
| Report reconnaissance information for classification | 5 | 21 | 1 | 4 | 10 | 42 | 8 | 33 |
| Perform zone reconnaissance | 2 | 8 | 4 | 16 | 7 | 29 | 11 | 47 |
| Select/recommend entry/exit routes | 4 | 16 | 4 | 16 | 10 | 42 | 6 | 26 |
| Identify primary front line units | 10 | 42 | 5 | 21 | 6 | 26 | 3 | 11 |
| Detect enemy camouflage and concealment | 10 | 42 | 5 | 21 | 6 | 26 | 3 | 11 |

INSTITUTIONAL
FLIGHT INSTRUCTIONAL PERSONNEL
QUESTIONNAIRE, SECTION II

| | f | % |
|---|---|---|
| A. List 5 items (from the list of 145) that you feel are in greatest need of additional emphasis. | | |
| 1. Basic flight skills (slopes, ridgelines, pinnacles, night, loads, cross-country) | 218 | 74 |
| 2. Emergency procedures (autorotation, engine failure, hydraulic failure) | 201 | 68 |
| 3. Flight planning, ATC, publications reports, weight and balance | 105 | 36 |
| 4. Instrument time (Basic, VASI, TAC, advanced) | 60 | 20 |
| 5. Ground school (academics, pads) | 36 | 12 |
| B. List any task that should be but is not currently taught. | | |
| 1. Cross country flights | 35 | 12 |
| C. List 5 tasks (from the list of 145) that should be eliminated from the FTGs. | | |
| 1. NOE | 39 | 13 |
| 2. NVG | 39 | 13 |
| D. Comment on the following items: | | |
| D.1. Proficiency training. | | |
| A. In favor of, with restrictions | 31 | 30 |
| B. In favor of | 21 | 20 |
| C. Not in favor of | 51 | 50 |

Restrictions: more rigid standards, clearly defined with increased training time prior to checkride.

D.2. Self-paced training:

| | | |
|---|---|---|
| A. In favor of, with restrictions | 47 | 30 |
| B. In favor of | 27 | 17 |
| C. Not in favor of | 83 | 53 |

Restrictions: better equipment, more instructors

D.3. Letter grades:

| | | |
|---|---|---|
| A. In favor of, with restrictions | 85 | 55 |
| B. In favor of | 23 | 15 |
| C. Not in favor of | 47 | 30 |

Restrictions: provide incentives for top 10% of class

D.4. Number grades:

| | | |
|---|---|---|
| A. In favor of, with restrictions | 66 | 34 |
| B. In favor of | 19 | 10 |
| C. Not in favor of | 110 | 56 |

Restrictions: same as D3

D.5. Pass/fail system

| | | |
|---|---|---|
| A. In favor of, with restrictions | 114 | 61 |
| B. In favor of | 20 | 11 |
| C. Not in favor of | 52 | 28 |

Restrictions: same as D1

D.6. Plus and minus grades:

| | | |
|---|---|---|
| A. In favor of, with restrictions | 12 | 6 |
| B. In favor of | 98 | 49 |
| C. Not in favor of | 92 | 45 |

Restrictions: restructure grading system, use with pass/fail system

| | | f | % |
|---|---|---|---|
| D.7. | Flight time grades | | |
| | A. In favor of, with restrictions | 15 | 8 |
| | B. In favor of | 11 | 6 |
| | C. Not in favor of | 157 | 86 |
| | Restrictions: use only when top men have same grades to identify better of two | | |
| D.8. | Honor graduates: | | |
| | A. In favor of, with restrictions | 129 | 72 |
| | B. In favor of | 4 | 2 |
| | C. Not in favor of | 46 | 26 |
| | Restrictions: provide incentive for honor graduates, i.e., choice of PCS orders | | |
| D.9. | IP availability | | |
| | A. Sufficient IP's for objective | 40 | 29 |
| | B. Insufficient IP's for objectives | 97 | 71 |
| D.10. | Sequence of phases | | |
| | A. Adequate | 121 | 95 |
| | B. Inadequate | 7 | 5 |
| | Recommended changes: Instruments last, night after combat skills, no UH-1 transition for scouts | | |
| D.11. | Sequence of maneuvers within a phase | | |
| | A. Adequate | 130 | 90 |
| | B. Inadequate | 14 | 10 |
| | Recommended changes: TAC instruments prior to NOE, GCA first in instruction, BI in aircraft not simulator | | |

| | | f | % |
|---|---|---|---|
| | CAO, pinnacles, slopes and cross country in primary, takeoffs and landings prior to autorotation | | |
| D.12. | FTG allotted time per maneuver | | |
| | A. Too much time | 2 | 1 |
| | B. Not enough time | 112 | 71 |
| | C. Sufficient time | 43 | 28 |
| D.13. | IPs say-so in eliminations | | |
| | A. More say-so | 162 | 81 |
| | B. Present system O.K. | 27 | 14 |
| | C. Less say-so | 10 | 5 |
| D.14. | Elimination of student under present system | | |
| | A. Too easy | 18 | 9 |
| | B. O.K. | 20 | 10 |
| | C. Too difficult | 171 | 81 |
| D.15. | Utilization of weather days | | |
| | A. Good | 131 | 74 |
| | B. O.K. | 21 | 12 |
| | C. Bad | 25 | 14 |
| D.16. | Student proficiency when reaching your phase: | | |
| | A. Good | 30 | 18 |
| | B. O.K. | 7 | 4 |
| | C. Bad | 131 | 78 |
| D.17. | Training to a flight level vs. a proficiency level | | |
| | A. Flight | 41 | 33 |
| | B. Proficiency | 84 | 67 |

| | f | % |
|---|---|---|
| D.18. How different IPs grade same SP on same maneuver | | |
| A. Uniform | 105 | 70 |
| B. Different since standards differ | 25 | 17 |
| C. Varies with experience | 19 | 13 |
| D.19. Should FTG have allowances for weather days | | |
| A. Yes | 182 | 94 |
| B. No | 13 | 6 |
| E. Additional comments: | | |
| 1. Reduce SP/IP ratio: 3/1 to 2/1 | 49 | 17 |
| 2. Change 175/40 to 200/50 | 45 | 15 |
| 3. Stop flip-flop, all simulator then all flight | 44 | 15 |
| 4. Lengthen Basic | 30 | 10 |

# APPENDIX K

## INSTITUTIONAL ACADEMIC INSTRUCTIONAL PERSONNEL QUESTIONNAIRE

APPENDIX K

# INSTITUTIONAL ACADEMIC INSTRUCTIONAL PERSONNEL QUESTIONNAIRE

Data provided by the 40 respondents to the academic questionnaire are presented in this appendix.

Section I of this questionnaire contained 148 academic topics from the IERW POI. These topics were categorized under 14 general headings which coincided with the general areas of instruction listed in the POI. The respondent was asked to respond only to those topics with which he was having or had had instructional experience, with regard to the sufficiency of POI allotted time of instruction to allow student to attain proficiency as defined by the objectives listed in the POI. The five categories of responses were the same as those discussed in Section I of the flight instructional personnel questionnaire (Appendix J).

Section II requested opinions from the respondent for the same first three questions as the flight instructional personnel questionnaire. Question D deviated somewhat as the more flight related items were removed and more academic related items were inserted. This question asked for opinions or feelings on:

A. Proficiency based training and advancement.

B. Self-paced training

C. Letter grades

D. Numerical grades

E. Pass/fail grades

F. Flight time grades

G. Honor graduate

H. Availability of instructors

I. Sequence of phases within the course

J. Sequence of items within a phase

K. Programmed instruction vs. platform time

L. Instructors having more say so in elimination process

M. Elimination of students under present system

N. Time utilization

O. Student proficiency when reaching your area

Due to the comparatively small number of academic personnel, the general areas have substantially smaller numbers of respondents than the flight instructional areas.

As with the flight instructional personnel questionnaire, the responses are listed in rank order for those responses given by 10% or more of the total number responding.

INSTITUTIONAL
ACADEMIC INSTRUCTIONAL PERSONNEL
QUESTIONNAIRE, SECTION I

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| OFFICER/WARRANT OFFICER DEVELOPMENT | | | | | | | | |
| Energy conservation | | | 1 | 11 | 2 | 22 | 6 | 67 |
| Roles of Army aviation | | | 1 | 10 | 3 | 30 | 6 | 60 |
| AVIATION MEDICINE AND LIFE SUPPORT | | | | | | | | |
| Altitude physiology | | | | | | | 1 | 100 |
| G forces | | | | | | | 1 | 100 |
| Adverse effects of temperature extremes | | | | | 1 | 50 | 1 | 50 |
| Basic hazards in aviation | | | | | | | 2 | 100 |
| Noise in aviation | | | | | 1 | 33 | 2 | 67 |
| Aviation medicine orientation | | | | | 1 | 50 | 1 | 50 |
| Spatial disorientation and sensory illusion of flight | | | | | | | 1 | 100 |
| Stress, noise and fatigue | | | | | 1 | 33 | 2 | 67 |
| Visual depth perception & night vision orientation | | | 1 | 33 | 1 | 33 | 1 | 33 |
| Physiological training | | | | | 1 | 100 | | |
| PRIMARY ACADEMICS | | | | | | | | |
| Rotary wing aerodyamics | | | 1 | 13 | 1 | 13 | 6 | 74 |
| Flight controls | | | | | 1 | 8 | 11 | 92 |
| Helicopter engine instrumentation | | | | | | | 17 | 100 |
| Cockpit procedures & pre/ post flight checks | | | 4 | 25 | 2 | 12 | 10 | 63 |
| Climbs, turns, etc. | | | | | | | 1 | 100 |
| Normal takeoff, traffic patterns and approaches | | | | | | | 1 | 100 |
| Autorotation and simulated engine failure | | | | | | | 4 | 100 |
| Physics of atmosphere | | | | | 1 | 100 | | |

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| PRIMARY ACADEMICS cont'd | | | | | | | | |
| Magnetic compass | | | 1 | 14 | 2 | 29 | 4 | 57 |
| Communication procedures and radio phraseology | | | | | 2 | 33 | 4 | 67 |
| Aircraft structure and air frame | | | | | 1 | 13 | 7 | 87 |
| Main rotor and tail rotor system | | | | | 1 | 11 | 8 | 89 |
| Aircraft hardware and safety procedures | 1 | 25 | | | 1 | 25 | 2 | 50 |
| Power train and electrical | | | | | 4 | 29 | 10 | 71 |
| Power plants | | | | | 4 | 36 | 7 | 64 |
| Aircraft forms | 1 | 14 | | | 5 | 72 | 1 | 14 |
| Emergency procedures | | | | | 2 | 12 | 15 | 88 |
| Aircraft accident prevention | | | | | 1 | 100 | | |
| Wake turbulence | | | | | 2 | 67 | 1 | 33 |
| Proximity warning device | | | | | 1 | 33 | 2 | 67 |
| Atmosphere | | | | | 3 | 100 | | |
| Pressure and winds | | | | | 2 | 67 | 1 | 33 |
| Air masses and clouds | | | | | 2 | 67 | 1 | 33 |
| Frontal weather | | | | | 2 | 67 | 1 | 33 |
| Weather reports | | | | | 2 | 67 | 1 | 33 |
| Weather analysis charts | | | | | 4 | 100 | | |
| Weather forecasts | | | | | 3 | 60 | 2 | 40 |
| Weather hazards | | | 1 | 20 | 2 | 40 | 2 | 40 |
| Aeronautical chart symbology | | | | | 1 | 33 | 2 | 67 |
| Distance and direction | | | | | 2 | 67 | 1 | 33 |
| Variable deviation and wind effects | | | | | 1 | 25 | 3 | 75 |
| Navigation practical exercises | | | | | 1 | 25 | 3 | 75 |
| Navigation computer slide rule | | | | | 1 | 20 | 4 | 80 |
| Navigation computer wind face | | | | | 1 | 25 | 3 | 75 |
| Flight plans | | | | | 1 | 20 | 4 | 80 |
| Compute ETE, ET, etc. | | | | | 1 | 25 | 3 | 75 |
| General and visual flight rules | | | | | 2 | 33 | 4 | 67 |
| Performance data charts | | | | | 4 | 57 | 3 | 43 |
| DOD FLIPs | | | | | 1 | 17 | 5 | 83 |

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| UH-1 AIRCRAFT SYSTEMS | | | | | | | | |
| Weight and balance | | | 3 | 37 | 1 | 13 | 4 | 50 |
| Use of operator's manual | | | | | 3 | 21 | 11 | 79 |
| Electrical systems | | | 1 | 8 | 3 | 25 | 8 | 67 |
| Flight control system | | | 1 | 10 | 1 | 10 | 8 | 80 |
| Power train system | | | | | 1 | 13 | 7 | 87 |
| Rotor system | | | | | 1 | 13 | 7 | 87 |
| Fuel system | | | | | 2 | 17 | 10 | 83 |
| Engine familiarization and malfunction indications | | | | | 1 | 7 | 13 | 93 |
| Malfunction and analysis | | | 1 | 8 | 3 | 23 | 9 | 69 |
| 2C35 COCKPIT PROCEDURAL TRAINER | | | | | | | | |
| UH-1 cockpit procedures | | | 3 | 21 | 3 | 21 | 8 | 58 |
| 2C35 cockpit procedures | | | | | 1 | 11 | 8 | 89 |
| UH1FS orientation | | | 1 | 19 | 5 | 72 | 1 | 19 |
| UH-1 TRANSITION FLIGHT | | | | | | | | |
| UH-1 transition training (day) | | | | | 4 | 100 | | |
| UH-1 transition training (night) | | | | | 2 | 100 | | |
| UH-1 transition flight | | | | | | | 2 | 100 |
| INSTRUMENT ACADEMICS | | | | | | | | |
| Instrument academic orientation | | | | | 3 | 50 | 3 | 50 |
| Flight instruments | | | | | 2 | 29 | 5 | 71 |
| Attitude instrument flying | | | | | 2 | 33 | 4 | 67 |
| VOR approach procedures | | | | | 2 | 25 | 6 | 75 |
| VOR orientation and tracking | | | | | 2 | 29 | 5 | 71 |
| Instrument flight rules | | | | | 2 | 25 | 6 | 75 |
| Holding procedures | | | | | 2 | 25 | 6 | 75 |
| ADF navigation | | | | | 3 | 38 | 5 | 62 |
| ADF approach procedures | | | | | 3 | 38 | 5 | 62 |

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| INSTRUMENT ACADEMICS cont'd | | | | | | | | |
| VOR enroute navigation | | | | | 1 | 13 | 7 | 87 |
| Radar procedures | | | | | 1 | 13 | 7 | 87 |
| IFR flight plans | | | | | 1 | 13 | 7 | 87 |
| ILS | | | 1 | 10 | 1 | 10 | 8 | 80 |
| Gyrocompass failure | | | | | 3 | 33 | 6 | 67 |
| Enroute charts and supplements | | | | | 1 | 33 | 7 | 87 |
| ATC agencies | | | | | 1 | 20 | 4 | 80 |
| ATC clearances | | | | | 1 | 14 | 6 | 86 |
| IFR communications | | | | | 4 | 50 | 4 | 50 |
| Communications failure and emer. procedures | | | | | 4 | 57 | 3 | 43 |
| Approach control procedures | | | | | 2 | 29 | 5 | 71 |
| Navigation computer | | | | | 1 | 17 | 5 | 83 |
| Transponder | | | | | | | 1 | 100 |
| IFR flight planning | | | | | | | 1 | 100 |
| Weather funds. and flight planning | | | | | | | 2 | 100 |
| UH-1 INSTRUMENT FLIGHT | | | | | | | | |
| UH-1 flight simulator orientation | | | 1 | 100 | | | | |
| UH1FS instrument training | | | | | 1 | 100 | | |
| SURVIVAL EVASION, RESISTANCE, ESCAPE (SERE) | | | | | | | | |
| Survival medicine | | | 1 | 20 | 1 | 20 | 3 | 60 |
| Travel, personal protection and camouflage | | | 1 | 20 | 1 | 20 | 3 | 60 |
| Major area survival kits | | | 1 | 17 | 1 | 17 | 4 | 67 |
| Physiology of food | | | 1 | 50 | 1 | 50 | | |
| Evasion | | | 1 | 20 | | | 4 | 80 |
| Introduction to resistance | | | 1 | 20 | 1 | 20 | 3 | 60 |
| Land nav., fire making, and shelter | | | 1 | 17 | 2 | 33 | 3 | 50 |
| Procurement of food and water | | | 1 | 17 | 1 | 17 | 4 | 67 |

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| SERE cont'd | | | | | | | | |
| Signaling and rescue devices | | | 1 | 17 | 1 | 17 | 4 | 67 |
| PW organization | | | 1 | 20 | 1 | 20 | 3 | 60 |
| Prisoner exploitation | | | 1 | 20 | 1 | 20 | 3 | 60 |
| TACTICAL ACADEMICS | | | | | | | | |
| Tactical aircraft communications | | | | | 1 | 50 | 1 | 50 |
| Terrain flying operations | | | | | 1 | 17 | 5 | 83 |
| Threat | | | | | 1 | 17 | 5 | 83 |
| Target identification | | | | | | | 5 | 100 |
| Combat operations | | | | | | | 5 | 100 |
| Electronics warfare | | | | | | | 1 | 100 |
| OH-58 AIRCRAFT SYSTEMS | | | | | | | | |
| Description and aircraft familiarization | | | | | 3 | 60 | 2 | 40 |
| Weight and balance | | | | | 1 | 33 | 2 | 67 |
| Fuel system | | | 1 | 17 | 3 | 50 | 2 | 33 |
| Power train system | | | | | 1 | 25 | 3 | 75 |
| Rotor system | | | | | 1 | 25 | 3 | 75 |
| Electrical system | | | | | 2 | 25 | 6 | 75 |
| Flight control system | | | | | 1 | 17 | 5 | 83 |
| Engine familiarization and malfunction analysis | | | | | 1 | 25 | 3 | 75 |
| Malfunction and analysis | | | | | | | 4 | 100 |
| OH-58 TRANSITION FLIGHT | | | | | | | | |
| Flight briefing | | | | | 1 | 100 | | |
| UH-1 COMBAT FLIGHT | | | | | | | | |
| Combat skills and orientation briefing | | | | | 1 | 100 | | |
| Tactical night flight | | | | | 1 | 100 | | |

| ACADEMIC TOPIC | HOW SUFFICIENT WAS THE ALLOTTED INSTRUCTION TIME TO ACHIEVE PROFICIENCY IN THE TASK? (1) NOT AT ALL SUFFICIENT | | (2) NOT VERY SUFFICIENT | | (3) SLIGHTLY SUFFICIENT | | (4) VERY SUFFICIENT | |
|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % |
| OH-58 COMBAT FLIGHT | | | | | | | | |
| Tactical night flight training | | | | | 1 | 100 | | |
| TACTICAL NAVIGATION AND INSTRUMENT FLIGHT | | | | | | | | |
| Tactical navigation and instrument flight | | | | | 2 | 40 | 3 | 60 |
| Tactical instrument UH1FS training | | | | | 1 | 50 | 1 | 50 |

INSTITUTIONAL
ACADEMIC INSTRUCTIONAL PERSONNEL
*QUESTIONNAIRE, SECTION II*

(Comments shared by at least 10% of the instructors)

A. List 5 items (from the list of 148) that you feel are in greatest need of additional emphasis.

| | f | % |
|---|---|---|
| 1. Malfunction and analysis | 5 | 13 |
| 2. Weight and balance | 5 | 13 |
| 3. Preflight | 4 | 10 |

B. List any task that should be but is not currently taught

None

C. List 5 items (from the list of 148) that should be eliminated from the curriculum.

None

D. Comment on the following items:

D.1. Proficiency based training and advancement

| | | |
|---|---|---|
| A. In favor of, with restrictions | 8 | 53 |
| B. In favor of, | 3 | 20 |
| C. Not in favor of | 4 | 27 |

Restrictions: more clearly defined standards, more adherence to standards

D.2. Self-paced training

| | | |
|---|---|---|
| A. In favor of, with restrictions | 8 | 32 |
| B. In favor of | 5 | 20 |
| C. Not in favor of | 12 | 48 |

Restrictions: more instructors to aid instruction

| | | f | % |
|---|---|---|---|
| D.3. | Letter grades | | |
| | A. In favor of, with restrictions | 3 | 14 |
| | B. In favor of | 2 | 9 |
| | C. Not in favor of | 17 | 77 |
| | Restrictions: used in conjunction with same type of incentive for top men. | | |
| D.4. | Numerical grades | | |
| | A. In favor of, with restrictions | 3 | 14 |
| | B. In favor of | 11 | 50 |
| | C. Not in favor of | 8 | 36 |
| | Restrictions: same as D3 | | |
| D.5. | Pass/fail (Go/No-Go) system | | |
| | A. In favor of, with restrictions | 2 | 8 |
| | B. In favor of | 14 | 58 |
| | C. Not in favor of | 8 | 33 |
| | Restrictions: same as D1 | | |
| D.6. | Flight time grades | | |
| | A. In favor of, with restrictions | 0 | 0 |
| | B. In favor of | 2 | 33 |
| | C. Not in favor of | 4 | 67 |
| D.7. | Honor graduate | | |
| | A. In favor of, with restrictions | 5 | 25 |
| | B. In favor of | 10 | 50 |
| | C. Not in favor of | 5 | 25 |
| | Restrictions: top man should get choice of assignments | | |

| | | f | % |
|---|---|---|---|
| D.8. | Availability of instructors | | |
| | A. Need more instructors | 9 | 23 |
| | B. O.K. | 5 | 13 |
| | C. Instructors given too many outside details | 5 | 13 |
| D.9. | Sequences of phase | | |
| | A. Checkrides should be completed prior to new academics | 11 | 28 |
| | B. Good | 9 | 23 |
| D.10. | Sequence of items within a phase | | |
| | A. Move new material after checkrides | 9 | 23 |
| D.11. | Programmed instruction as compared to platform time | | |
| | A. In favor of programmed instruction, with restrictions | 14 | 35 |
| | B. In favor of program instruction | 5 | 13 |
| | C. In favor of platform instruction | 4 | 10 |
| | Restrictions: accompanied with instructors | | |
| D.12. | Instructors having more say-so in elimination process | | |
| | A. Yes | 21 | 53 |
| D.13. | Elimination of students under present system | | |
| | A. Poor | 10 | 25 |
| D.14. | Time utilization | | |
| | A. Need more time | 6 | 15 |
| | B. Good | 4 | 10 |
| | C. Poor | 4 | 10 |

| | f | % |
|---|---|---|
| D.15. Student proficiency when reaching your area | | |
| A. Good | 5 | 13 |
| B. Adequate | 8 | 20 |
| C. Poor | 12 | 30 |

E. Additional comments on any matter

There were no additional comments shared by at least 10% of the instructors.

# APPENDIX L

## DAYS TO PROFICIENCY
## BY MANEUVER AND PHASE

# APPENDIX L

## DAYS TO PROFICIENCY BY MANEUVER AND PHASE

An integral portion of the institutional analysis was the development of normative data for days to maneuver proficiency. The following six tables and associated phase maneuver keys are those data.

The tables show the combined data from samples of six selected classes for each phase. A total of 30 different classes were involved. The training day of that phase is shown across the top of each table, with the maneuvers listed in the first column. The maneuvers are listed in ascending order of mean training day to proficiency. The maneuver key is given for each phase at the end of that phase table.

The second column lists the number (N) of trainees in the sample classes who achieved proficiency, i.e., three successive (+) daily grades, on each maneuver. The third column lists the mean training day (MEAN TD) on which the trainees reached proficiency for each maneuver. The fourth column lists the training day standard deviation (STD. DEV.). The remaining columns list the cumulative percentage of trainees who had reached proficiency on each maneuver on each training day of that phase. Table L-1 commences on the first training day following the final solo checkride. For all other phases, the training days are from the beginning of that phase. Those maneuvers indicated with an asterisk (*) are those maneuvers which are included on the checkride.

TABLE L-1
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGES BY MANEUVER
PRIMARY PHASE (POST-SOLO), CLASSES 78-29 THROUGH 78-34

| MAN. NO. | N | MEAN TD | STD. DEV. | POST-SOLO TRAINING DAY | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1 | 73 | 10.8 | 5.11 | 5 | 11 | 16 | 22 | 32 | 41 | 44 | 48 | 60 | 68 | 70 | 74 | 81 | 84 | 86 | 90 | 95 | 96 | 97 | 100 | | |
| 3 | 77 | 12.3 | 4.41 | 4 | 6 | 9 | 9 | 16 | 25 | 27 | 34 | 43 | 49 | 56 | 62 | 75 | 83 | 88 | 96 | 99 | 99 | 99 | 100 | | |
| 2 | 70 | 12.8 | 4.64 | 4 | 6 | 9 | 10 | 14 | 17 | 26 | 29 | 39 | 49 | 54 | 60 | 73 | 77 | 83 | 90 | 94 | 96 | 99 | 100 | | |
| 5 | 72 | 13.3 | 4.39 | 4 | 6 | 7 | 7 | 11 | 15 | 18 | 24 | 32 | 40 | 44 | 54 | 71 | 79 | 83 | 92 | 96 | 97 | 97 | 99 | 100 | |
| 4 | 70 | 14.2 | 3.89 | | 1 | 1 | 1 | 7 | 9 | 14 | 17 | 24 | 33 | 41 | 50 | 60 | 71 | 80 | 89 | 94 | 97 | 97 | 99 | 100 | |
| 6 | 60 | 15.6 | 3.77 | 2 | 2 | 2 | 2 | 3 | 5 | 7 | 7 | 13 | 20 | 25 | 37 | 40 | 52 | 68 | 78 | 88 | 95 | 95 | 100 | | |
| 13 | 59 | 15.8 | 4.28 | | 2 | 3 | 5 | 8 | 8 | 8 | 10 | 15 | 19 | 24 | 31 | 41 | 51 | 61 | 71 | 80 | 92 | 95 | 100 | | |
| 12 | 1 | 16.0 | 0.00 | | | | | | | | | | | | | 0 | 100 | | | | | | | | |
| 9 | 59 | 16.1 | 3.42 | | | 2 | 2 | 3 | 3 | 3 | 7 | 10 | 14 | 17 | 27 | 37 | 47 | 68 | 80 | 86 | 93 | 95 | 100 | | |
| 7 | 50 | 16.4 | 3.09 | | | | | | 2 | 4 | 4 | 8 | 8 | 16 | 24 | 40 | 46 | 66 | 78 | 84 | 92 | 96 | 100 | | |
| 14 | 51 | 16.8 | 3.15 | | | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 6 | 14 | 20 | 29 | 43 | 59 | 69 | 80 | 92 | 94 | 100 | | |
| 8 | 34 | 17.0 | 2.34 | | | | | | | | | 3 | 3 | 6 | 12 | 21 | 44 | 65 | 79 | 85 | 94 | 94 | 100 | | |
| 11 | 50 | 17.1 | 2.59 | | | | | | | | | 2 | 4 | 10 | 18 | 24 | 40 | 52 | 72 | 82 | 90 | 96 | 100 | | |
| 10 | 46 | 17.2 | 2.91 | | | | | 2 | 2 | 2 | 2 | 4 | 4 | 7 | 15 | 24 | 37 | 48 | 67 | 83 | 89 | 93 | 100 | | |
| 99 | 118 | 18.8 | 2.17 | | | | | | | | | | 1 | 2 | 4 | 4 | 14 | 26 | 44 | 67 | 81 | 94 | 94 | 97 | 100 |

MANEUVER KEY, PRIMARY PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Ground operations (oral)* |
| 2 | Takeoff/landing to hover* |
| 3 | Hovering flight* |
| 4 | Clearing turns* |
| 5 | Normal takeoff* |
| 6 | Normal approach* |
| 7 | Simulated maximum performance takeoff* |
| 8 | Steep approach to ground* |
| 9 | Traffic patterns* |
| 10 | Hovering autorotations* |
| 11 | Standard autorotation* |
| 12 | Autorotation with turns |
| 13 | Simulated engine failure* |
| 14 | Power recovery* |
| 99 | EFF-1, Primary Phase checkride |

TABLE L-2
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGE BY MANEUVER
TRANSITION PHASE, CLASSES 78-21 THROUGH 78-26

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 4 | 19 | 8.1 | 5.00 | 11 | 26 | 47 | 58 | 68 | 68 | 68 | 68 | 74 | 74 | 74 | 74 | 95 | 95 | 95 | 100 | | |
| 3 | 15 | 8.2 | 5.06 | 13 | 33 | 47 | 53 | 60 | 67 | 67 | 67 | 67 | 73 | 73 | 87 | 93 | 93 | 93 | 100 | | |
| 1 | 1 | 9.0 | 0.00 | | | | | | 0 | 100 | | | | | | | | | | | |
| 2 | 94 | 9.4 | 3.00 | | 1 | 9 | 20 | 34 | 40 | 53 | 70 | 73 | 81 | 87 | 95 | 99 | 100 | | | | |
| 10 | 89 | 9.6 | 3.26 | | 4 | 10 | 20 | 28 | 39 | 49 | 69 | 74 | 81 | 88 | 91 | 94 | 98 | 99 | 100 | | |
| 9 | 94 | 9.7 | 3.50 | | 6 | 11 | 21 | 28 | 38 | 48 | 67 | 76 | 82 | 84 | 89 | 93 | 95 | 97 | 100 | | |
| 11 | 93 | 9.9 | 3.42 | | 4 | 9 | 17 | 27 | 39 | 47 | 65 | 72 | 76 | 82 | 89 | 95 | 96 | 98 | 100 | | |
| 45 | 76 | 10.0 | 3.41 | 1 | 5 | 13 | 21 | 26 | 33 | 38 | 59 | 70 | 76 | 80 | 91 | 97 | 97 | 100 | | | |
| 5 | 91 | 10.3 | 3.14 | | 2 | 5 | 13 | 23 | 32 | 40 | 55 | 64 | 75 | 79 | 90 | 96 | 100 | | | | |
| 8 | 86 | 10.6 | 3.25 | | 1 | 5 | 10 | 19 | 28 | 40 | 56 | 63 | 74 | 80 | 88 | 91 | 95 | 98 | 100 | | |
| 12 | 89 | 10.6 | 3.66 | 1 | 3 | 9 | 13 | 21 | 30 | 39 | 53 | 62 | 70 | 76 | 82 | 90 | 93 | 97 | 100 | | |
| 44 | 78 | 10.7 | 3.50 | | 3 | 6 | 13 | 22 | 29 | 32 | 55 | 65 | 71 | 76 | 81 | 91 | 95 | 97 | 100 | | |
| 23 | 89 | 10.8 | 3.38 | | 1 | 3 | 9 | 17 | 28 | 45 | 55 | 58 | 64 | 72 | 85 | 91 | 96 | 98 | 100 | | |
| 16 | 80 | 11.0 | 3.51 | 1 | 2 | 6 | 13 | 17 | 26 | 32 | 46 | 54 | 61 | 74 | 84 | 90 | 95 | 97 | 100 | | |
| 13 | 87 | 11.1 | 3.69 | 1 | 3 | 6 | 10 | 17 | 30 | 37 | 48 | 56 | 63 | 71 | 76 | 87 | 92 | 98 | 100 | | |
| 17 | 78 | 11.2 | 3.68 | 1 | 4 | 6 | 12 | 21 | 24 | 32 | 46 | 54 | 56 | 67 | 77 | 88 | 95 | 99 | 100 | | |
| 7 | 51 | 11.5 | 3.23 | | | 2 | 8 | 10 | 18 | 29 | 47 | 49 | 59 | 73 | 84 | 90 | 94 | 94 | 100 | | |
| 15 | 54 | 11.5 | 3.78 | | | | 9 | 17 | 24 | 35 | 52 | 54 | 63 | 65 | 70 | 83 | 89 | 94 | 98 | 98 | 100 |
| 19 | 66 | 11.9 | 3.74 | 2 | 3 | 3 | 6 | 14 | 21 | 33 | 39 | 44 | 52 | 65 | 71 | 79 | 91 | 97 | 98 | 98 | 100 |
| 34 | 3 | 12.0 | 3.47 | | | | | | | | 67 | 67 | 67 | 67 | 67 | 67 | 100 | | | | |
| 42 | 1 | 12.0 | 0.00 | | | | | | | | | 0 | 100 | | | | | | | | |
| 6 | 7 | 12.3 | 4.86 | | 14 | 14 | 14 | 14 | 14 | 14 | 43 | 43 | 57 | 57 | 57 | 71 | 71 | 86 | 100 | | |
| 18 | 33 | 12.4 | 3.26 | | | | 6 | 9 | 15 | 21 | 33 | 36 | 42 | 64 | 70 | 85 | 91 | 97 | 100 | | |
| 20 | 13 | 12.5 | 3.44 | | | | | 15 | 23 | 23 | 31 | 31 | 38 | 54 | 62 | 85 | 92 | 100 | | | |
| 41 | 26 | 12.7 | 3.06 | | | | 4 | 8 | 12 | 15 | 27 | 31 | 42 | 54 | 69 | 85 | 88 | 100 | | | |
| 24 | 27 | 13.0 | 4.23 | | 7 | 7 | 7 | 11 | 19 | 22 | 33 | 33 | 33 | 37 | 59 | 63 | 81 | 89 | 96 | 100 | |
| 43 | 1 | 13.0 | 0.00 | | | | | | | | | | 0 | 100 | | | | | | | |
| 21 | 31 | 13.1 | 3.28 | | | | | | 13 | 26 | 32 | 32 | 32 | 52 | 55 | 71 | 87 | 97 | 100 | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 14 | 57 | 13.1 | 3.76 | | | | 2 | 9 | 19 | 25 | 33 | 37 | 37 | 46 | 53 | 63 | 77 | 93 | 100 | | |
| 22 | 30 | 13.2 | 2.91 | | | | | 7 | 10 | 13 | 23 | 23 | 27 | 50 | 63 | 77 | 90 | 100 | | | |
| 29 | 27 | 13.2 | 3.07 | | | | 4 | 7 | 11 | 22 | 22 | 22 | 22 | 41 | 52 | 81 | 96 | 100 | | | |
| 25 | 45 | 13.2 | 3.41 | | | | 2 | 7 | 13 | 24 | 27 | 29 | 31 | 38 | 56 | 71 | 91 | 96 | 98 | 98 | 100 |
| 30 | 29 | 13.4 | 3.58 | | | 7 | 7 | 10 | 14 | 14 | 17 | 21 | 28 | 45 | 59 | 69 | 79 | 97 | 97 | 100 | |
| 33 | 43 | 13.6 | 3.81 | | | | 12 | 14 | 16 | 19 | 23 | 26 | 26 | 30 | 44 | 67 | 79 | 95 | 98 | 98 | 100 |
| 26 | 44 | 14.1 | 2.93 | | | | 2 | 2 | 7 | 11 | 14 | 20 | 25 | 27 | 48 | 61 | 84 | 93 | 100 | | |
| 31 | 5 | 14.4 | 2.71 | | | | | | | | | 20 | 20 | 40 | 60 | 60 | 80 | 80 | 100 | | |
| 40 | 2 | 15.0 | 2.83 | | | | | | | | | | | 50 | 50 | 50 | 50 | 100 | | | |
| 32 | 16 | 15.3 | 2.91 | | | | | | | | 13 | 19 | 19 | 25 | 25 | 38 | 69 | 88 | 88 | 94 | 100 |
| 27 | 25 | 15.8 | 1.56 | | | | | | | | | | | 8 | 20 | 44 | 68 | 80 | 100 | | |
| 28 | 1 | 16.0 | 0.00 | | | | | | | | | | | | | 0 | 100 | | | | |
| 99 | 120 | 17.8 | 1.51 | | | | | | | | | | | | 2 | 3 | 15 | 45 | 65 | 85 | 100 |



MANEUVER KEY, TRANSITION PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Hazards to low level flight (oral) |
| 2 | Preflight inspection* |
| 3 | Description, location and use of fire extinguisher |
| 4 | Emergency exits |
| 5 | Cockpit procedures |
| 6 | Battery start/fire guard procedures (oral)* |
| 7 | RPM control/warning system |
| 8 | Go/No-Go procedures* |
| 9 | Takeoff to hover* |
| 10 | Hovering flight* |
| 11 | Landing from hover* |
| 12 | Takeoff, normal from hover* |
| 13 | Takeoff, normal from ground* |
| 14 | Takeoff maximum performance* |
| 15 | Local area orientation |
| 16 | Airwork* |
| 17 | Traffic patterns* |
| 18 | Approach, normal to hover* |
| 19 | Approach, normal to ground* |
| 20 | Approach, steep to hover* |
| 21 | Approach, steep to ground* |
| 22 | Takeoff & landing crosswind |
| 23 | Radio procedures |
| 24 | Decelerations* |

## MANEUVER KEY, TRANSITION PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 25 | Forced landing/power recovery* |
| 26 | Autorotation, standard* |
| 27 | Autorotation, low level* |
| 28 | Autorotation, sod touchdown |
| 29 | Autorotation, hovering* |
| 30 | Emergency procedures (oral)* |
| 31 | Emergency governor operations |
| 32 | Simulated antitorque failure* |
| 33 | Servo off operations* |
| 34 | Inadvertent IMC procedures |
| 35 | Confined area operations (oral)* |
| 36 | Slope operations* |
| 37 | Pinnacle/ridgeline operations (oral)* |
| 38 | Loads (external) |
| 39 | Loads (internal) |
| 40 | Use of lights |
| 41 | Use of flight instruments |
| 42 | Use of glideslope |
| 43 | Minimum lighting |
| 44 | Parking |
| 45 | Safety* |
| 99 | EFF-2, Transition Phase checkride |

TABLE L-3
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGES BY MANEUVER
INSTRUMENT PHASE, CLASSES 78-17 THROUGH 78-22

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 24 | 7.1 | 2.18 | | | | 8 | 71 | 75 | 83 | 83 | 83 | 96 | 96 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 78 | 7.8 | 5.67 | 1 | 1 | 23 | 40 | 59 | 62 | 74 | 81 | 83 | 91 | 92 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 99 | 99 | 99 | 100 | | | |
| 16 | 32 | 7.8 | 5.31 | | 3 | 3 | 41 | 72 | 72 | 72 | 81 | 81 | 91 | 91 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 100 | | | | | | | | | | | | | | | |
| 17 | 66 | 8.0 | 5.75 | | | 20 | 33 | 61 | 62 | 73 | 82 | 85 | 91 | 91 | 92 | 92 | 94 | 94 | 94 | 94 | 94 | 94 | 95 | 95 | 95 | 95 | 95 | 95 | 97 | 98 | 98 | 98 | 98 | 98 | 98 | 98 | 100 | | | | | |
| 18 | 63 | 8.5 | 6.36 | | | 1 | 32 | 60 | 62 | 74 | 81 | 84 | 88 | 88 | 91 | 93 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 96 | 96 | 97 | 97 | 97 | 97 | 97 | 99 | 99 | 100 | | | | |
| 19 | 3 | 8.7 | 2.52 | | | | | 33 | 33 | 33 | 67 | 67 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 4 | 9.5 | 1.74 | | | | | | | 25 | 75 | 75 | 75 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 10 | 10.4 | 6.77 | | | | 20 | 40 | 40 | 50 | 70 | 70 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 90 | 90 | 90 | 90 | 90 | 100 | | | | | | | | | | | | | | | |
| 7 | 90 | 10.9 | 9.26 | | | 8 | 20 | 46 | 52 | 72 | 80 | 81 | 81 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 83 | 83 | 83 | 83 | 84 | 84 | 86 | 87 | 90 | 90 | 93 | 97 | 98 | 99 | 99 | 99 | 100 | | | |
| 22 | 38 | 11.3 | 7.58 | | | | 5 | 37 | 45 | 50 | 63 | 66 | 71 | 71 | 76 | 82 | 82 | 84 | 84 | 84 | 84 | 84 | 87 | 87 | 87 | 87 | 89 | 92 | 92 | 95 | 97 | 97 | 97 | 97 | 100 | | | | | | | |
| 5 | 80 | 12.0 | 9.45 | | | 10 | 19 | 31 | 41 | 57 | 75 | 75 | 75 | 75 | 76 | 77 | 77 | 77 | 77 | 77 | 77 | 79 | 79 | 80 | 80 | 80 | 80 | 81 | 84 | 89 | 89 | 91 | 96 | 97 | 97 | 100 | | | | | | |
| 21 | 3 | 13.4 | 10.22 | | | | | 33 | 33 | 33 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 100 | | | | | | | | | | | | | | | |
| 8 | 80 | 13.5 | 10.03 | | | 7 | 13 | 27 | 39 | 50 | 65 | 66 | 66 | 66 | 67 | 67 | 71 | 71 | 71 | 71 | 71 | 72 | 75 | 77 | 79 | 79 | 79 | 79 | 81 | 82 | 86 | 89 | 92 | 94 | 96 | 100 | | | | | | |
| 24 | 2 | 13.5 | 10.61 | | | | | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 100 | | | | | | | | | | | | | | | | | | | |
| 9 | 83 | 14.2 | 11.27 | | | 8 | 12 | 35 | 42 | 51 | 65 | 66 | 66 | 66 | 66 | 70 | 71 | 71 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 73 | 76 | 76 | 76 | 78 | 78 | 80 | 84 | 88 | 89 | 94 | 98 | 100 | | | |
| 52 | 10 | 18.0 | 9.46 | | | | | | | | | 30 | 30 | 40 | 40 | 50 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 80 | 80 | 80 | 90 | 100 | | | | | | | |
| 47 | 80 | 21.1 | 9.14 | | | | | | | | | 14 | 14 | 30 | 32 | 40 | 45 | 46 | 47 | 47 | 49 | 49 | 50 | 52 | 59 | 63 | 65 | 66 | 69 | 70 | 71 | 75 | 82 | 88 | 90 | 92 | 95 | 97 | 100 | | | |
| 37 | 87 | 21.2 | 7.45 | | | | | | | | | | 2 | 10 | 16 | 31 | 34 | 40 | 44 | 45 | 47 | 51 | 56 | 57 | 61 | 63 | 69 | 71 | 75 | 79 | 83 | 85 | 89 | 90 | 94 | 98 | 99 | 100 | | | | |
| 42 | 10 | 22.8 | 9.09 | | | | | | | | | | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 40 | 50 | 50 | 50 | 50 | 50 | 50 | 60 | 60 | 60 | 70 | 70 | 80 | 80 | 80 | 80 | 80 | 100 | | | | | | |
| 63 | 1 | 23.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | | | | | | | | | | |
| 38 | 77 | 23.2 | 8.08 | | | | | | | | | | 3 | 10 | 14 | 23 | 27 | 29 | 32 | 35 | 39 | 42 | 48 | 49 | 53 | 55 | 55 | 57 | 58 | 66 | 70 | 74 | 79 | 83 | 90 | 94 | 96 | 100 | | | | |
| 51 | 73 | 23.3 | 9.39 | | | | | | | | | 8 | 8 | 16 | 19 | 30 | 36 | 38 | 40 | 40 | 42 | 42 | 45 | 48 | 49 | 51 | 56 | 59 | 60 | 62 | 64 | 67 | 71 | 77 | 81 | 86 | 90 | 93 | 99 | 100 | | |
| 48 | 70 | 23.3 | 8.84 | | | | | | | | | 9 | 9 | 20 | 20 | 27 | 33 | 33 | 34 | 34 | 39 | 39 | 39 | 43 | 46 | 50 | 53 | 59 | 61 | 63 | 66 | 69 | 77 | 83 | 87 | 91 | 96 | 96 | 100 | | | | |
| 26 | 67 | 23.5 | 6.40 | | | | | | | | | | | | | | 7 | 7 | 31 | 31 | 46 | 46 | 46 | 52 | 52 | 54 | 54 | 64 | 64 | 72 | 72 | 88 | 91 | 94 | 96 | 96 | 97 | 97 | 100 | | | | |
| 41 | 82 | 24.0 | 8.23 | | | | | | | | | | 2 | 7 | 9 | 22 | 27 | 30 | 32 | 37 | 38 | 39 | 43 | 43 | 46 | 46 | 48 | 50 | 55 | 62 | 70 | 72 | 76 | 79 | 85 | 90 | 95 | 100 | | | | | |
| 30 | 2 | 24.5 | 4.95 | | | | | | | | | | | | | | | | | | | 0 | 50 | 50 | 50 | 50 | 50 | 50 | 100 | | | | | | | | | | | | | |
| 2 | 71 | 25.0 | 6.34 | | | | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 7 | 10 | 11 | 13 | 17 | 21 | 30 | 39 | 44 | 46 | 49 | 55 | 58 | 65 | 72 | 80 | 87 | 90 | 90 | 99 | 99 | 100 | | | | |
| 49 | 57 | 25.1 | 8.45 | | | | | | | | | 7 | 7 | 9 | 9 | 16 | 21 | 28 | 28 | 28 | 32 | 33 | 33 | 35 | 39 | 39 | 49 | 51 | 51 | 51 | 56 | 63 | 74 | 81 | 82 | 88 | 95 | 95 | 100 | | | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | 82 | 25.3 | 5.47 | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 11 | 23 | 27 | 38 | 46 | 55 | 59 | 61 | 62 | 68 | 74 | 79 | 84 | 87 | 91 | 96 | 96 | 98 | 100 | | | |
| 39 | 75 | 25.8 | 7.40 | | | | | | | | | | 3 | 5 | 7 | 9 | 13 | 16 | 19 | 21 | 25 | 27 | 31 | 35 | 39 | 39 | 40 | 44 | 49 | 59 | 64 | 68 | 73 | 77 | 83 | 88 | 97 | 99 | 100 | | | | |
| 1 | 72 | 25.8 | 6.27 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 7 | 10 | 13 | 18 | 19 | 26 | 32 | 36 | 43 | 47 | 53 | 57 | 64 | 67 | 72 | 82 | 85 | 86 | 93 | 99 | 100 | | | | | |
| 50 | 56 | 26.1 | 8.82 | | | | | | | | | 7 | 7 | 11 | 11 | 18 | 25 | 27 | 27 | 27 | 27 | 29 | 29 | 30 | 32 | 32 | 39 | 41 | 43 | 45 | 50 | 54 | 66 | 73 | 79 | 84 | 91 | 93 | 100 | | | | |
| 56 | 46 | 26.5 | 8.64 | | | | | | | | | 7 | 7 | 7 | 9 | 11 | 17 | 20 | 24 | 24 | 24 | 28 | 33 | 35 | 37 | 39 | 41 | 43 | 46 | 48 | 48 | 50 | 54 | 63 | 72 | 87 | 91 | 93 | 98 | 100 | | | |
| 40 | 73 | 26.6 | 7.70 | | | | | | | | | | 3 | 7 | 7 | 12 | 16 | 18 | 21 | 21 | 22 | 23 | 27 | 27 | 32 | 32 | 32 | 36 | 42 | 52 | 58 | 60 | 67 | 73 | 79 | 86 | 95 | 97 | 100 | | | | |
| 14 | 72 | 26.7 | 5.95 | | | | | | | | | | | | | 3 | 4 | 8 | 8 | 10 | 17 | 21 | 26 | 26 | 29 | 32 | 35 | 42 | 49 | 54 | 58 | 68 | 78 | 85 | 86 | 93 | 100 | | | | | | |
| 62 | 13 | 26.7 | 6.36 | | | | | | | | | | | | | | | | | | 15 | 23 | 31 | 38 | 38 | 38 | 46 | 62 | 62 | 62 | 62 | 62 | 62 | 77 | 77 | 77 | 100 | | | | | | |
| 54 | 41 | 27.0 | 8.36 | | | | | | | | | 5 | 5 | 7 | 7 | 12 | 17 | 20 | 20 | 20 | 22 | 24 | 27 | 29 | 34 | 34 | 39 | 39 | 41 | 49 | 54 | 59 | 66 | 71 | 83 | 90 | 93 | 100 | | | | | |
| 58 | 74 | 27.2 | 5.16 | | | | | | | | | | | | | | | | | 1 | 5 | 12 | 16 | 23 | 34 | 38 | 42 | 45 | 46 | 54 | 64 | 72 | 80 | 85 | 85 | 92 | 96 | 96 | 100 | | | | | |
| 6 | 6 | 27.4 | 9.73 | | | | | | | | | | | | | | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 67 | 83 | 83 | 83 | 83 | 100 | | | | |
| 10 | 77 | 27.5 | 5.50 | | | | | | | | | | | | | 1 | 3 | 4 | 6 | 8 | 9 | 16 | 19 | 19 | 21 | 29 | 31 | 32 | 39 | 56 | 62 | 70 | 75 | 79 | 86 | 91 | 97 | 99 | 100 | | | | |
| 65 | 2 | 27.5 | 2.13 | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 50 | 50 | 100 | | | | | | | | | | | |
| 61 | 73 | 27.6 | 5.17 | | | | | | | | | | | | | | | | | 3 | 4 | 10 | 14 | 22 | 30 | 33 | 37 | 42 | 45 | 53 | 59 | 68 | 77 | 85 | 85 | 88 | 95 | 96 | 100 | | | | |
| 27 | 20 | 27.7 | 4.77 | | | | | | | | | | | | | | | | | | 5 | 15 | 20 | 20 | 35 | 40 | 45 | 45 | 50 | 55 | 65 | 70 | 80 | 95 | 95 | 100 | | | | | | |
| 3 | 53 | 27.7 | 5.97 | | | | | | | | | | | | | | 2 | 4 | 11 | 11 | 13 | 19 | 23 | 25 | 25 | 28 | 30 | 34 | 34 | 43 | 51 | 58 | 66 | 74 | 85 | 96 | 98 | 100 | | | | |
| 46 | 57 | 27.8 | 7.03 | | | | | | | | | | | 5 | 5 | 9 | 9 | 12 | 14 | 14 | 18 | 18 | 23 | 23 | 25 | 25 | 30 | 30 | 32 | 39 | 47 | 53 | 65 | 72 | 77 | 86 | 96 | 98 | 100 | | | |
| 53 | 11 | 27.9 | 8.71 | | | | | | | | | 9 | 9 | 9 | 9 | 9 | 18 | 18 | 18 | 18 | 18 | 18 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 36 | 45 | 55 | 73 | 82 | 82 | 82 | 91 | 100 | | | |
| 12 | 61 | 28.2 | 5.27 | | | | | | | | | | | | | 2 | 2 | 2 | 5 | 5 | 8 | 13 | 15 | 18 | 20 | 23 | 26 | 28 | 34 | 44 | 52 | 62 | 67 | 77 | 89 | 90 | 98 | 100 | | | | |
| 44 | 54 | 28.3 | 7.01 | | | | | | | | | | | 4 | 4 | 4 | 7 | 11 | 13 | 17 | 17 | 19 | 20 | 20 | 22 | 22 | 24 | 31 | 33 | 41 | 50 | 52 | 54 | 63 | 70 | 81 | 93 | 98 | 100 | | | |
| 11 | 66 | 28.6 | 5.39 | | | | | | | | | | | | | 2 | 2 | 2 | 5 | 5 | 6 | 11 | 14 | 17 | 18 | 21 | 23 | 29 | 35 | 44 | 53 | 59 | 68 | 73 | 82 | 88 | 92 | 97 | 98 | 100 | | |
| 36 | 6 | 29.0 | 5.63 | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 67 | 67 | 83 | 83 | 100 | | | | |
| 4 | 49 | 29.1 | 4.96 | | | | | | | | | | | | | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 6 | 10 | 18 | 18 | 24 | 29 | 35 | 39 | 47 | 55 | 63 | 71 | 80 | 90 | 96 | 98 | 100 | | | |
| 59 | 63 | 29.2 | 4.73 | | | | | | | | | | | | | | | | | | 3 | 6 | 6 | 14 | 16 | 17 | 22 | 27 | 30 | 41 | 46 | 51 | 68 | 78 | 83 | 89 | 94 | 94 | 98 | 100 | | | |
| 13 | 69 | 29.5 | 5.14 | | | | | | | | | | | | | 1 | 1 | 1 | 4 | 6 | 6 | 10 | 10 | 10 | 12 | 14 | 20 | 22 | 25 | 33 | 41 | 51 | 58 | 71 | 80 | 90 | 93 | 96 | 99 | 100 | | |
| 28 | 17 | 29.6 | 3.90 | | | | | | | | | | | | | | | | | | | 6 | 6 | 6 | 6 | 18 | 18 | 18 | 18 | 35 | 35 | 53 | 59 | 71 | 94 | 100 | | | | | | |
| 43 | 26 | 30.2 | 5.36 | | | | | | | | | | | | | 4 | 4 | 4 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 15 | 19 | 27 | 35 | 46 | 62 | 65 | 69 | 77 | 88 | 100 | | | | |
| 60 | 65 | 30.2 | 4.39 | | | | | | | | | | | | | | | | | | 2 | 5 | 5 | 8 | 11 | 11 | 15 | 18 | 25 | 34 | 37 | 42 | 57 | 63 | 72 | 85 | 95 | 97 | 100 | | | | |
| 66 | 55 | 30.4 | 4.32 | | | | | | | | | | | | | | | | | | | 2 | 4 | 7 | 13 | 13 | 16 | 16 | 22 | 29 | 35 | 45 | 55 | 65 | 73 | 85 | 91 | 96 | 100 | | | | |
| 64 | 60 | 30.5 | 4.93 | | | | | | | | | | | | | | | | | | 3 | 7 | 7 | 10 | 15 | 17 | 18 | 20 | 22 | 28 | 32 | 38 | 50 | 60 | 70 | 78 | 90 | 93 | 98 | 100 | | | |
| 34 | 10 | 30.5 | 5.74 | | | | | | | | | | | | | | | | | | | | 10 | 10 | 10 | 30 | 30 | 30 | 30 | 30 | 30 | 40 | 50 | 60 | 60 | 70 | 80 | 90 | 90 | 100 | | | |
| 29 | 1 | 32.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 |
|---|---|---|---|---|
| 35 | 1 | 32.0 | 0.00 | 0 100 |
| 45 | 1 | 35.0 | 0.00 | 0 100 |
| 98 | 110 | 7.1 | 0.23 | 0 95 100 |
| 99 | 104 | 36.1 | 2.00 | 4 5 11 17 35 58 69 87 95 99 100 |

MANEUVER KEY, INSTRUMENT PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Cockpit check |
| 2 | Equipment check |
| 3 | Instrument takeoff |
| 4 | Standard instrument departure* |
| 5 | Flight fundamentals* |
| 6 | Lost communication* |
| 7 | Trim control* |
| 8 | Cross check* |
| 9 | Instrument interpretation* |
| 10 | Flight planning* |
| 11 | Radio voice communication* |
| 12 | Air traffic control |
| 13 | Cruise control* |
| 14 | Enroute navigation* |
| 15 | Straight and Level* |
| 16 | Acceleration and deceleration* |
| 17 | Climbs and descents* |
| 18 | Standard rate turns* |
| 19 | Timed turns* |
| 20 | Steep turns* |
| 21 | Compass turns* |
| 22 | Climbing and descent turns* |
| 23 | Servo failure* |
| 24 | Autorotations* |
| 25 | Unusual attitude recovery* |
| 26 | Post flight |
| 27 | Tuning radio (GCA)* |
| 28 | Orientation (GCA)* |
| 29 | Track intercept (GCA)* |
| 30 | Track following (GCA)* |
| 31 | Radio fix identification (GCA)* |
| 32 | Transition (GCA)* |
| 33 | Holding (GCA)* |
| 34 | Approach (GCA)* |
| 35 | Low visual approach (GCA)* |
| 36 | Missed approach (GCA)* |
| 37 | Tuning radio (VOR)* |
| 38 | Orientation (VOR)* |
| 39 | Track intercept (VOR)* |
| 40 | Track following (VOR)* |
| 41 | Radio fix identification (VOR)* |
| 42 | Transition (VOR)* |
| 43 | Holding (VOR)* |
| 44 | Approach (VOR)* |
| 45 | Low visual approach (VOR)* |
| 46 | Missed approach (VOR)* |
| 47 | Tuning Radio (ADF)* |
| 48 | Orientation (ADF)* |
| 49 | Track intercept (ADF)* |
| 50 | Track following (ADF)* |
| 51 | Radio fix identification (ADF)* |
| 52 | Transition (ADF)* |
| 53 | Holding (ADF)* |
| 54 | Approach (ADF)* |
| 55 | Low visual approach (ADF)* |
| 56 | Missed approach (ADF)* |
| 57 | Tuning radio (ILS)* |
| 58 | Orientation (ILS)* |
| 59 | Track intercept (ILS)* |
| 60 | Track following (ILS)* |
| 61 | Radio fix identification (ILS)* |
| 62 | Transition (ILS)* |
| 63 | Holding (ILS)* |
| 64 | Aproach (ILS)* |
| 65 | Low visual approach (ILS)* |
| 66 | Missed approach (ILS)* |
| 98 | EFF-3, Instrument Midphase checkride |
| 99 | EFF-4, Instrument Phase checkride |

TABLE L-4
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGE BY MANEUVER
NIGHT PHASE, CLASSES 78-09 THROUGH 78-14

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 0 | 0.0 | 0.00 | | | | | | | | | | | | |
| 16 | 0 | 0.0 | 0.00 | | | | | | | | | | | | |
| 17 | 0 | 0.0 | 0.00 | | | | | | | | | | | | |
| 18 | 0 | 0.0 | 0.00 | | | | | | | | | | | | |
| 19 | 0 | 0.0 | 0.00 | | | | | | | | | | | | |
| 26 | 87 | 6.1 | 1.70 | 49 | 86 | 86 | 89 | 92 | 95 | 98 | 100 | | | | |
| 1 | 87 | 6.2 | 1.92 | 54 | 83 | 83 | 85 | 87 | 94 | 98 | 100 | | | | |
| 3 | 4 | 6.5 | 0.58 | 0 | 50 | 100 | | | | | | | | | |
| 2 | 78 | 7.0 | 2.33 | 38 | 59 | 67 | 74 | 83 | 92 | 95 | 97 | 99 | 99 | 100 | |
| 25 | 79 | 7.2 | 2.03 | 18 | 57 | 65 | 75 | 82 | 91 | 97 | 99 | 100 | | | |
| 23 | 75 | 7.5 | 2.19 | 19 | 52 | 57 | 65 | 81 | 88 | 97 | 99 | 99 | 100 | | |
| 7 | 71 | 7.5 | 2.63 | 25 | 51 | 62 | 75 | 80 | 89 | 90 | 92 | 96 | 97 | 100 | |
| 22 | 67 | 7.8 | 2.16 | 10 | 42 | 51 | 61 | 79 | 88 | 94 | 99 | 99 | 100 | | |
| 4 | 76 | 7.9 | 2.52 | 16 | 43 | 57 | 67 | 74 | 83 | 89 | 93 | 99 | 99 | 100 | |
| 5 | 74 | 7.9 | 2.29 | 14 | 31 | 51 | 66 | 78 | 88 | 93 | 95 | 97 | 99 | 100 | |
| 8 | 62 | 8.3 | 2.44 | 3 | 37 | 48 | 56 | 69 | 82 | 89 | 92 | 98 | 98 | 100 | |
| 6 | 71 | 8.3 | 2.55 | 14 | 32 | 44 | 55 | 72 | 82 | 87 | 92 | 96 | 100 | | |
| 24 | 36 | 8.5 | 2.24 | 11 | 22 | 39 | 50 | 67 | 78 | 92 | 97 | 100 | | | |
| 20 | 1 | 9.0 | 0.00 | | | | 0 | 100 | | | | | | | |
| 11 | 57 | 9.1 | 2.59 | 9 | 19 | 26 | 44 | 61 | 70 | 81 | 88 | 95 | 98 | 100 | |
| 21 | 35 | 9.2 | 2.35 | 3 | 11 | 31 | 37 | 60 | 77 | 83 | 89 | 94 | 100 | | |
| 10 | 46 | 9.3 | 2.91 | 13 | 22 | 30 | 41 | 52 | 72 | 78 | 83 | 93 | 96 | 98 | 100 |
| 9 | 39 | 9.3 | 2.48 | 3 | 15 | 26 | 44 | 56 | 72 | 82 | 82 | 95 | 100 | | |
| 13 | 31 | 9.6 | 2.59 | 3 | 19 | 26 | 32 | 48 | 65 | 77 | 84 | 94 | 100 | | |
| 12 | 22 | 10.5 | 2.47 | 5 | 5 | 9 | 9 | 45 | 59 | 64 | 77 | 91 | 91 | 100 | |
| 14 | 20 | 10.8 | 2.49 | | 5 | 10 | 15 | 35 | 50 | 60 | 70 | 90 | 90 | 100 | |
| 99 | 100 | 12.4 | 2.00 | | | | | 7 | 22 | 41 | 51 | 71 | 83 | 94 | 100 |

## MANEUVER KEY, NIGHT PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Preflight inspection (oral)* |
| 2 | Cockpit procedures (oral)* |
| 3 | Initial hover check* |
| 4 | Takeoff to hover* |
| 5 | Hovering turns* |
| 6 | Landing from hover* |
| 7 | Go/No-Go procedures |
| 8 | Takeoff* |
| 9 | Approach* |
| 10 | Running landing* |
| 11 | Airwork traffic patterns* |
| 12 | Autorotations, standard* |
| 13 | Hovering autorotations* |
| 14 | Autorotations, low level* |
| 15 | Methods of instruction |
| 16 | Reconnaissance, high, low & ground (oral)* |
| 17 | Circling approach |
| 18 | Confined area operations* |
| 19 | Pinnacle operations (oral)* |
| 20 | Slope operations* |
| 21 | Training methodology |
| 22 | Use of lights* |
| 23 | Use of flight instruments* |
| 24 | Emergency procedures (oral)* |
| 25 | Crew duties* |
| 26 | Postflight inspection* |
| 99 | EFF-5, Night Phase checkride |

TABLE L-5
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGES BY MANEUVER
UTILITY, COMBAT SKILLS PHASE, CLASSES 78-05 THROUGH 78-10

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
| 1 | 61 | 6.4 | 5.01 | 28 | 56 | 69 | 72 | 75 | 80 | 84 | 85 | 90 | 90 | 90 | 90 | 92 | 93 | 93 | 95 | 95 | 95 | 95 | 97 | 100 | | | | | | | | | | | | | | | |
| 26 | 60 | 6.7 | 4.81 | 23 | 42 | 57 | 72 | 72 | 75 | 85 | 87 | 88 | 92 | 92 | 92 | 92 | 95 | 95 | 95 | 95 | 95 | 95 | 97 | 100 | | | | | | | | | | | | | | | |
| 2 | 60 | 8.4 | 5.83 | 12 | 42 | 55 | 55 | 55 | 58 | 65 | 68 | 75 | 77 | 78 | 85 | 88 | 90 | 92 | 93 | 93 | 93 | 93 | 95 | 98 | 100 | | | | | | | | | | | | | | |
| 3 | 61 | 9.3 | 5.97 | 13 | 26 | 44 | 48 | 49 | 56 | 62 | 66 | 67 | 70 | 74 | 80 | 82 | 85 | 89 | 89 | 93 | 93 | 93 | 97 | 100 | | | | | | | | | | | | | | | |
| 43 | 57 | 10.3 | 6.70 | 5 | 18 | 35 | 42 | 47 | 58 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 74 | 79 | 89 | 93 | 93 | 93 | 93 | 95 | 95 | 98 | 98 | 100 | | | | | | | | | | | |
| 37 | 1 | 14.0 | 0.00 | | | | | | | | | | | 0 | 100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | 4 | 14.0 | 0.00 | | | | | | | | | | | 0 | 100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 8 | 14.2 | 0.36 | | | | | | | | | | | 0 | 88 | 100 | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | 7 | 14.2 | 0.38 | | | | | | | | | | | 0 | 86 | 100 | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | 7 | 14.2 | 0.38 | | | | | | | | | | | 0 | 86 | 100 | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 9 | 14.3 | 0.45 | | | | | | | | | | | 0 | 78 | 100 | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 53 | 15.0 | 9.02 | 2 | 11 | 17 | 23 | 26 | 34 | 42 | 43 | 45 | 47 | 51 | 51 | 51 | 57 | 62 | 64 | 68 | 72 | 72 | 74 | 79 | 85 | 85 | 85 | 85 | 91 | 91 | 91 | 98 | 100 | | | | | | |
| 8 | 8 | 15.8 | 2.55 | | | | | | | | | | 13 | 13 | 25 | 38 | 88 | 88 | 88 | 88 | 88 | 100 | | | | | | | | | | | | | | | | | |
| 4 | 52 | 15.9 | 8.12 | | 4 | 10 | 19 | 21 | 25 | 31 | 31 | 31 | 35 | 35 | 44 | 46 | 60 | 67 | 67 | 73 | 75 | 75 | 77 | 81 | 83 | 83 | 85 | 87 | 90 | 94 | 96 | 98 | 98 | 100 | | | | | |
| 46 | 57 | 16.8 | 8.06 | | 2 | 7 | 11 | 11 | 19 | 30 | 33 | 33 | 37 | 39 | 40 | 40 | 49 | 53 | 58 | 61 | 67 | 70 | 72 | 77 | 82 | 84 | 84 | 88 | 88 | 91 | 95 | 100 | | | | | | | |
| 28 | 54 | 17.0 | 6.95 | | 4 | 7 | 13 | 13 | 13 | 17 | 19 | 20 | 26 | 26 | 33 | 37 | 46 | 52 | 61 | 69 | 72 | 72 | 74 | 85 | 87 | 89 | 91 | 93 | 94 | 94 | 98 | 100 | | | | | | | |
| 5 | 42 | 17.2 | 7.42 | | | 10 | 10 | 12 | 14 | 17 | 24 | 24 | 29 | 33 | 43 | 43 | 43 | 48 | 55 | 60 | 67 | 71 | 71 | 81 | 86 | 86 | 90 | 93 | 93 | 95 | 95 | 95 | 100 | | | | | | |
| 45 | 25 | 17.3 | 7.75 | | | | 8 | 12 | 16 | 24 | 24 | 32 | 36 | 40 | 40 | 48 | 48 | 48 | 52 | 52 | 52 | 64 | 68 | 76 | 84 | 84 | 88 | 92 | 96 | 96 | 96 | 96 | 100 | | | | | | |
| 9 | 55 | 17.6 | 8.71 | 4 | 5 | 18 | 20 | 20 | 22 | 25 | 29 | 29 | 29 | 33 | 33 | 33 | 36 | 40 | 45 | 51 | 62 | 65 | 69 | 78 | 84 | 85 | 85 | 85 | 87 | 89 | 91 | 93 | 100 | | | | | | |
| 30 | 1 | 18.0 | 0.00 | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | | | | | | | | | | | | | |
| 31 | 6 | 18.4 | 8.83 | | | | | | 17 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 50 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 83 | 83 | 83 | 83 | 100 | | | | | | | | |
| 7 | 57 | 18.7 | 7.65 | | 5 | 5 | 5 | 5 | 11 | 16 | 18 | 19 | 21 | 25 | 28 | 32 | 37 | 46 | 47 | 56 | 65 | 70 | 70 | 74 | 79 | 79 | 81 | 84 | 88 | 88 | 89 | 95 | 98 | 100 | | | | | |
| 48 | 50 | 18.8 | 7.80 | | | 2 | 4 | 6 | 12 | 18 | 22 | 22 | 28 | 28 | 32 | 34 | 36 | 42 | 46 | 46 | 60 | 66 | 70 | 70 | 74 | 80 | 80 | 84 | 84 | 86 | 90 | 98 | 100 | | | | | | |
| 11 | 58 | 19.0 | 7.41 | | 2 | 9 | 10 | 10 | 16 | 19 | 19 | 19 | 19 | 19 | 21 | 21 | 24 | 28 | 43 | 55 | 60 | 66 | 71 | 74 | 78 | 81 | 81 | 86 | 90 | 91 | 97 | 98 | 100 | | | | | | |
| 12 | 55 | 19.1 | 7.93 | | 4 | 11 | 13 | 13 | 15 | 22 | 22 | 22 | 22 | 22 | 24 | 24 | 25 | 29 | 36 | 44 | 58 | 64 | 67 | 71 | 76 | 80 | 82 | 87 | 91 | 91 | 95 | 95 | 96 | 100 | | | | | |
| 10 | 59 | 19.3 | 7.57 | | | 8 | 10 | 10 | 14 | 20 | 20 | 20 | 22 | 22 | 24 | 24 | 24 | 25 | 32 | 42 | 53 | 64 | 69 | 73 | 78 | 81 | 83 | 85 | 86 | 90 | 95 | 98 | 100 | | | | | | |
| 6 | 44 | 19.5 | 8.75 | | | 9 | 11 | 16 | 18 | 18 | 18 | 20 | 25 | 27 | 27 | 27 | 32 | 41 | 48 | 57 | 59 | 59 | 59 | 64 | 68 | 66 | 70 | 75 | 82 | 84 | 89 | 91 | 100 | | | | | | |
| 58 | 5 | 20.0 | 14.79 | 0 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 60 | 60 | 60 | 60 | 60 | 80 | 100 | | | | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 51 | 21.1 | 6.73 | | | | 2 | 2 | 2 | 8 | 8 | 8 | 8 | 12 | 18 | 22 | 27 | 31 | 33 | 39 | 53 | 55 | 59 | 61 | 71 | 73 | 75 | 78 | 84 | 86 | 88 | 96 | 98 | 100 | | | | | |
| 24 | 6 | 21.5 | 3.51 | | | | | | | | | | | | | | 0 | 33 | 33 | 33 | 33 | 33 | 33 | 50 | 100 | | | | | | | | | | | | | | |
| 40 | 21 | 21.7 | 7.07 | | | | | | 5 | 5 | 5 | 10 | 14 | 14 | 24 | 29 | 29 | 29 | 33 | 33 | 43 | 43 | 43 | 52 | 67 | 67 | 67 | 71 | 71 | 95 | 95 | 95 | 100 | | | | | | |
| 33 | 4 | 21.8 | 9.92 | | | | | | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 50 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 100 | | | | | |
| 21 | 37 | 21.9 | 6.48 | | | | | | | | 3 | 5 | 8 | 8 | 11 | 11 | 19 | 30 | 43 | 46 | 49 | 51 | 57 | 62 | 68 | 70 | 70 | 73 | 81 | 81 | 84 | 92 | 97 | 100 | | | | | |
| 19 | 10 | 22.6 | 7.06 | | | | | | | | | 0 | 20 | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 40 | 50 | 50 | 50 | 70 | 70 | 70 | 80 | 80 | 80 | 90 | 100 | | | | | | |
| 13 | 50 | 22.9 | 6.46 | | | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | 8 | 8 | 12 | 14 | 24 | 28 | 36 | 42 | 46 | 50 | 58 | 60 | 62 | 74 | 82 | 86 | 90 | 96 | 96 | 100 | | | | | |
| 22 | 6 | 23.2 | 5.39 | | | | | | | | | | | | | | 0 | 17 | 33 | 33 | 33 | 33 | 33 | 33 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 100 | | | | | | |
| 32 | 26 | 23.8 | 8.97 | | | 4 | 8 | 8 | 8 | 8 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 31 | 35 | 38 | 38 | 38 | 38 | 38 | 42 | 42 | 42 | 42 | 46 | 65 | 69 | 81 | 92 | 100 | | | | | |
| 47 | 45 | 24.2 | 5.42 | | | | | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 7 | 7 | 7 | 7 | 11 | 27 | 40 | 44 | 53 | 58 | 73 | 80 | 82 | 84 | 84 | 84 | 98 | 100 | | | | | |
| 23 | 5 | 24.2 | 5.32 | | | | | | | | | | | | | | 0 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 100 | | | | | | |
| 14 | 45 | 24.5 | 3.80 | | | | | | | | | | | | 2 | 2 | 2 | 2 | 2 | 4 | 11 | 20 | 33 | 47 | 60 | 62 | 67 | 71 | 84 | 89 | 93 | 98 | 100 | | | | | | |
| 17 | 25 | 25.6 | 3.81 | | | | | | | | | | | | | | | | | | 8 | 20 | 36 | 36 | 44 | 48 | 48 | 56 | 76 | 84 | 92 | 96 | 100 | | | | | | |
| 16 | 35 | 26.2 | 3.53 | | | | | | | | | | | | | | | | | | 3 | 6 | 23 | 23 | 37 | 43 | 57 | 63 | 77 | 80 | 86 | 89 | 97 | 100 | | | | | |
| 15 | 32 | 26.6 | 3.47 | | | | | | | | | | | | | | | | | | 3 | 6 | 22 | 22 | 31 | 38 | 41 | 53 | 72 | 78 | 88 | 91 | 100 | | | | | | |
| 42 | 10 | 27.6 | 8.08 | | | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 40 | 70 | 100 | | | | | | |
| 20 | 7 | 28.0 | 3.70 | | | | | | | | | | | | | | | | | | | | 14 | 14 | 14 | 29 | 29 | 43 | 57 | 57 | 71 | 71 | 100 | | | | | | |
| 44 | 2 | 28.0 | 1.42 | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 50 | 100 | | | | | | | | | |
| 50 | 6 | 30.9 | 0.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 67 | 100 | | | | | | |
| 49 | 5 | 31.0 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 40 | 60 | 100 | | | | | | |
| 51 | 4 | 31.3 | 0.96 | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 25 | 50 | 100 | | | | | | |
| 29 | 1 | 32.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | |
| 54 | 1 | 32.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | |
| 99 | 70 | 34.4 | 1.82 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 6 | 11 | 11 | 16 | 43 | 79 | 94 | 97 | 100 | |

## MANEUVER KEY, UTILITY COMBAT SKILLS PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Preflight check* |
| 2 | Cockpit procedures* |
| 3 | Go/No-Go procedures* |
| 4 | Local area orientation* |
| 5 | Safety procedures (oral) |
| 6 | Emergency procedures (oral)* |
| 7 | Radio procedures* |
| 8 | FM homing |
| 9 | Hazards to terrain flight (oral)* |
| 10 | Terrain flight operations* |
| 11 | Terrain flight takeoff* |
| 12 | Approach from terrain flight* |
| 13 | Terrain flight navigation* |
| 14 | Hover in- and out-of-ground effect* |
| 15 | Terrain flight (NOE)* |
| 16 | NOE quick stop/deceleration* |
| 17 | Masking and unmasking techniques (oral)* |
| 18 | Map reading* |
| 19 | Aerial observation (oral)* |
| 20 | Tactical Reconnaissance* |
| 21 | Inflight mission change* |
| 22 | Formation flying (oral)* |
| 23 | Formation takeoffs (oral)* |
| 24 | Formation approaches (oral)* |
| 25 | Use of M24 mask |
| 26 | Postflight check* |
| 27 | Methods of instruction |
| 28 | Cockpit teamwork* |
| 29 | Changing formation (oral)* |
| 30 | Formation breakup and joinup |
| 31 | Autorotation, standard |
| 32 | Autorotation, low level* |
| 33 | Autorotation, hovering |
| 34 | Night approaches |
| 35 | Night traffic patterns |
| 36 | Night navigation |
| 37 | Night formation flight (dual) |
| 38 | Minimum lighted area operations |
| 39 | Use of lights and TG personnel |
| 40 | Load operations (internal) |
| 41 | Load operations (external) (oval)* |
| 42 | Forced landings |
| 43 | Rapid refueling* |
| 44 | Rappelling operations |
| 45 | IMC procedures (oral)* |
| 46 | Permission planning* |
| 47 | Artillery clearance procedures* |
| 48 | Use of CEOI and SOP* |
| 49 | Tactical circling letdown* |
| 50 | Tactical instrument letdown (oral)* |
| 51 | Tactical instrument inter (oral)* |
| 52 | Safety* |
| 53 | VOR approach |
| 54 | NBD approach |
| 55 | GCA approach |
| 56 | IFR clearance |
| 57 | Simulated underwire |
| 58 | Tactical use of instrument* |
| 99 | EFF-7, Utility Combat Sk' 'hase checkride |

TABLE L-6
DAYS TO PROFICIENCY: CUMULATIVE PERCENTAGES BY MANEUVER
AEROSCOUT, COMBAT SKILLS PHASE, CLASSES 78-05 THROUGH 78-10

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 1 | 6.0 | 0.00 | | | 0 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 28 | 7.0 | 6.75 | 14 | 36 | 64 | 79 | 79 | 89 | 89 | 89 | 89 | 89 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 100 | | | | | |
| 3 | 18 | 7.5 | 5.05 | 11 | 33 | 50 | 56 | 67 | 78 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 89 | 94 | 94 | 94 | 100 | | | | | | | | | | | | | | | | | | |
| 7 | 26 | 7.6 | 3.05 | 8 | 19 | 31 | 42 | 42 | 62 | 81 | 85 | 85 | 88 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 26 | 8.2 | 6.29 | 15 | 15 | 35 | 58 | 62 | 81 | 81 | 85 | 85 | 85 | 88 | 88 | 88 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 96 | 96 | 100 | | | | | | | | | | |
| 30 | 5 | 8.2 | 2.95 | | 0 | 20 | 20 | 40 | 80 | 80 | 80 | 80 | 80 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 26 | 8.3 | 3.46 | | 8 | 27 | 42 | 42 | 65 | 77 | 77 | 77 | 81 | 92 | 92 | 96 | 100 | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 26 | 8.4 | 6.02 | 15 | 15 | 35 | 54 | 54 | 73 | 73 | 81 | 85 | 88 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 100 | | | | | | | | | | | |
| 8 | 26 | 8.6 | 3.32 | | 15 | 19 | 35 | 42 | 46 | 65 | 69 | 81 | 85 | 96 | 96 | 96 | 100 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 27 | 8.7 | 6.19 | 4 | 15 | 30 | 41 | 44 | 59 | 78 | 81 | 81 | 85 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 100 | |
| 10 | 26 | 9.0 | 3.77 | | 8 | 19 | 35 | 38 | 54 | 65 | 69 | 69 | 77 | 92 | 92 | 92 | 96 | 96 | 100 | | | | | | | | | | | | | | | | | | | | |
| 4 | 27 | 9.6 | 5.56 | | 11 | 22 | 33 | 44 | 52 | 63 | 67 | 78 | 81 | 85 | 85 | 85 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 100 | | | | | | | | | | | | | |
| 1 | 27 | 10.0 | 3.80 | | 4 | 7 | 11 | 11 | 37 | 56 | 63 | 78 | 85 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 100 | | | | | | | | | | | | | |
| 2 | 27 | 10.3 | 4.82 | | | 7 | 15 | 15 | 41 | 59 | 70 | 74 | 78 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 100 | | | | | | | | | | | | | |
| 5 | 27 | 11.2 | 6.68 | | | 15 | 19 | 26 | 48 | 63 | 63 | 67 | 78 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 96 | 96 | 96 | 100 | | | | | | | | | | |
| 29 | 5 | 11.2 | 12.20 | | | 20 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 100 | | | | | |
| 11 | 26 | 11.7 | 8.15 | | 8 | 23 | 31 | 38 | 46 | 54 | 65 | 65 | 69 | 77 | 77 | 77 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 88 | 88 | 88 | 96 | 96 | 96 | 96 | 96 | 100 | | | | | | |
| 15 | 26 | 11.8 | 9.10 | 15 | 15 | 23 | 35 | 42 | 54 | 58 | 62 | 65 | 65 | 69 | 69 | 69 | 73 | 85 | 85 | 85 | 88 | 88 | 88 | 88 | 88 | 88 | 92 | 92 | 92 | 92 | 92 | 96 | 96 | 96 | 100 | | | | |
| 17 | 16 | 12.2 | 7.30 | 6 | 6 | 31 | 38 | 44 | 50 | 50 | 50 | 50 | 50 | 56 | 56 | 56 | 56 | 69 | 69 | 75 | 81 | 88 | 100 | | | | | | | | | | | | | | | | |
| 84 | 10 | 14.3 | 6.54 | | | | 0 | 20 | 20 | 20 | 30 | 30 | 40 | 50 | 70 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 90 | 100 | | | | | | | | | | | |
| 34 | 8 | 15.8 | 8.16 | | | 13 | 13 | 25 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 63 | 63 | 63 | 63 | 63 | 63 | 88 | 88 | 88 | 100 | | | | | | | | | | | |
| 16 | 23 | 16.5 | 9.60 | | | 9 | 17 | 22 | 26 | 30 | 35 | 35 | 43 | 43 | 43 | 43 | 61 | 70 | 70 | 70 | 70 | 78 | 78 | 78 | 78 | 78 | 83 | 83 | 83 | 83 | 83 | 91 | 91 | 91 | 96 | 96 | 100 | | |
| 58 | 21 | 16.6 | 7.39 | | | | | | | 5 | 19 | 29 | 43 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 81 | 81 | 81 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 100 | | | | | |
| 22 | 22 | 16.6 | 7.55 | | | | 14 | 18 | 18 | 18 | 23 | 27 | 27 | 27 | 27 | 32 | 64 | 68 | 68 | 77 | 77 | 82 | 82 | 82 | 82 | 86 | 86 | 91 | 91 | 91 | 91 | 95 | 95 | 100 | | | | | |
| 64 | 2 | 18.0 | 0.00 | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | | | | | | | | | | | | | |
| 61 | 7 | 18.2 | 2.68 | | | | | | | | | | | 14 | 14 | 14 | 14 | 14 | 71 | 71 | 71 | 100 | | | | | | | | | | | | | | | | | |
| 28 | 9 | 18.3 | 9.36 | | | 11 | 11 | 11 | 11 | 22 | 22 | 22 | 44 | 44 | 44 | 44 | 44 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 67 | 67 | 78 | 89 | 89 | 89 | 89 | 89 | 100 | | | | | | |
| 44 | 16 | 18.5 | 5.82 | | | | | | | | | 6 | 19 | 31 | 31 | 38 | 38 | 44 | 50 | 56 | 69 | 69 | 81 | 88 | 88 | 88 | 88 | 88 | 88 | 94 | 100 | | | | | | | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 21 | 18.6 | 6.96 | | | | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 24 | 29 | 33 | 48 | 57 | 62 | 62 | 67 | 67 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 95 | 95 | 95 | 95 | 95 | 95 | 100 | | |
| 41 | 13 | 18.7 | 1.94 | | | | | | | | | | | | | | 0 | 38 | 54 | 85 | 85 | 85 | 92 | 100 | | | | | | | | | | | | | | |
| 42 | 13 | 18.7 | 1.89 | | | | | | | | | | | | | | 0 | 31 | 54 | 85 | 85 | 85 | 92 | 100 | | | | | | | | | | | | | | |
| 20 | 19 | 18.9 | 6.31 | | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 16 | 16 | 16 | 53 | 53 | 53 | 63 | 68 | 74 | 79 | 79 | 79 | 84 | 89 | 89 | 89 | 89 | 89 | 95 | 100 | | | | | | |
| 33 | 12 | 19.2 | 10.62 | | | 0 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 58 | 75 | 75 | 75 | 92 | 92 | 92 | 100 | | | | | |
| 19 | 3 | 19.4 | 12.59 | | | 0 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 100 | | | | | |
| 18 | 15 | 19.5 | 6.16 | | | | | | | 7 | 13 | 13 | 13 | 20 | 20 | 27 | 27 | 33 | 40 | 40 | 40 | 73 | 80 | 87 | 87 | 87 | 87 | 87 | 93 | 93 | 93 | 93 | 100 | | | | | |
| 45 | 24 | 19.6 | 5.50 | | | | | | | | | | 8 | 13 | 21 | 25 | 38 | 42 | 42 | 58 | 67 | 71 | 71 | 71 | 79 | 79 | 83 | 88 | 92 | 96 | 100 | | | | | | | |
| 39 | 3 | 19.7 | 4.73 | | | | | | | | | | | | | 0 | 33 | 33 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 100 | | | | | | | | | | | | |
| 36 | 10 | 20.0 | 8.70 | | | | | | | | | | 10 | 30 | 40 | 50 | 60 | 60 | 60 | 60 | 60 | 60 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 80 | 90 | 90 | 90 | 90 | 90 | 90 | 100 | |
| 51 | 22 | 20.2 | 6.54 | | | | | | | | | | 9 | 27 | 27 | 27 | 27 | 41 | 45 | 50 | 59 | 64 | 73 | 73 | 73 | 77 | 82 | 82 | 82 | 86 | 91 | 95 | 95 | 100 | | | | | |
| 52 | 25 | 20.5 | 7.76 | | | | | | | | | 12 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 44 | 48 | 72 | 72 | 72 | 76 | 76 | 76 | 80 | 80 | 80 | 84 | 88 | 88 | 88 | 92 | 100 | | |
| 23 | 20 | 20.5 | 9.41 | | | | 5 | 10 | 10 | 10 | 10 | 25 | 25 | 35 | 35 | 45 | 45 | 45 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 60 | 65 | 70 | 75 | 85 | 85 | 85 | 90 | 90 | 95 | 100 | | |
| 48 | 20 | 20.7 | 6.49 | | | | | | | | | 10 | 15 | 25 | 25 | 30 | 30 | 30 | 30 | 35 | 40 | 50 | 60 | 60 | 75 | 85 | 85 | 85 | 85 | 90 | 95 | 95 | 95 | 100 | | | | |
| 49 | 20 | 20.8 | 6.42 | | | | | | | | | 10 | 15 | 25 | 25 | 30 | 30 | 30 | 30 | 35 | 40 | 50 | 60 | 60 | 70 | 80 | 80 | 85 | 85 | 90 | 95 | 100 | | | | | | |
| 46 | 22 | 21.6 | 7.04 | | | | | | | | | 9 | 14 | 23 | 23 | 23 | 23 | 27 | 32 | 36 | 41 | 41 | 59 | 64 | 68 | 77 | 77 | 82 | 82 | 86 | 91 | 91 | 95 | 95 | 95 | 95 | 95 | 100 |
| 54 | 15 | 21.6 | 6.21 | | | | | | | | | 0 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 33 | 33 | 47 | 60 | 60 | 67 | 80 | 80 | 80 | 87 | 87 | 93 | 93 | 100 | | | | | |
| 37 | 5 | 22.2 | 11.19 | | | 0 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 100 | | | | | |
| 59 | 21 | 22.3 | 7.11 | | | | | | | | | | 5 | 5 | 19 | 19 | 24 | 33 | 38 | 43 | 43 | 43 | 62 | 62 | 62 | 67 | 67 | 76 | 81 | 86 | 86 | 86 | 90 | 90 | 90 | 95 | 100 | |
| 21 | 22 | 22.9 | 9.45 | | | 5 | 9 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 32 | 32 | 32 | 32 | 32 | 41 | 45 | 45 | 50 | 64 | 68 | 73 | 73 | 73 | 73 | 73 | 73 | 86 | 91 | 95 | 95 | 100 |
| 26 | 4 | 23.3 | 11.62 | | | 0 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 50 | 50 | 75 | 75 | 100 | | | | | | |
| 47 | 18 | 23.5 | 5.57 | | | | | | | | | | | 6 | 6 | 6 | 6 | 17 | 17 | 28 | 33 | 33 | 56 | 56 | 61 | 67 | 67 | 67 | 72 | 78 | 94 | 94 | 94 | 100 | | | | |
| 53 | 20 | 23.8 | 8.52 | | | | | | | | | | 10 | 10 | 10 | 15 | 25 | 25 | 35 | 40 | 45 | 55 | 60 | 60 | 60 | 60 | 60 | 60 | 70 | 70 | 70 | 70 | 70 | 75 | 85 | 90 | 95 | 100 |
| 35 | 13 | 23.8 | 8.34 | | | | | | | | | | | 15 | 23 | 23 | 31 | 38 | 38 | 38 | 38 | 46 | 46 | 46 | 46 | 46 | 46 | 54 | 69 | 69 | 69 | 69 | 85 | 92 | 92 | 100 | | |
| 50 | 21 | 24.3 | 5.67 | | | | | | | | | | | 5 | 5 | 5 | 5 | 10 | 14 | 24 | 29 | 33 | 52 | 52 | 57 | 57 | 57 | 57 | 57 | 67 | 95 | 95 | 95 | 100 | | | | |
| 71 | 9 | 26.2 | 9.27 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 22 | 22 | 22 | 33 | 33 | 33 | 44 | 44 | 44 | 78 | 78 | 100 | | | | | |
| 24 | 1 | 27.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | | |
| 68 | 13 | 28.2 | 2.77 | | | | | | | | | | | | | | | | | | | | | | | 15 | 46 | 54 | 54 | 62 | 69 | 92 | 92 | 100 | | | | |
| 65 | 12 | 28.5 | 4.51 | | | | | | | | | | | | | | | | | 8 | 8 | 17 | 17 | 17 | 17 | 17 | 17 | 25 | 33 | 50 | 75 | 83 | 83 | 83 | 100 | | | |
| 69 | 13 | 28.9 | 2.83 | | | | | | | | | | | | | | | | | | | | | | | 8 | 31 | 38 | 46 | 62 | 69 | 77 | 92 | 92 | 100 | | | |
| 62 | 5 | 29.0 | 6.52 | | | | | | | | | | | | | | | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 40 | 40 | 40 | 40 | 40 | 100 | | | | |
| 79 | 1 | 29.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | | | |

| MAN. NO. | N | MEAN TD | STD. DEV. | TRAINING DAY 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 5 | 29.2 | 2.29 | | | | | | | | | | | | | | | | | | | | | | | | 0 | 20 | 40 | 80 | 80 | 80 | 80 | 100 | | | | | |
| 70 | 12 | 29.6 | 2.68 | | | | | | | | | | | | | | | | | | | | | | 8 | 8 | 8 | 17 | 42 | 42 | 58 | 75 | 83 | 100 | | | | | |
| 56 | 8 | 29.7 | 4.07 | | | | | | | | | | | | | | | | | | | 13 | 13 | 13 | 13 | 13 | 25 | 25 | 25 | 25 | 25 | 63 | 88 | 100 | | | | |
| 66 | 11 | 30.2 | 2.57 | | | | | | | | | | | | | | | | | | | | | | | | 9 | 18 | 27 | 36 | 45 | 73 | 91 | 91 | 91 | 100 | | |
| 74 | 2 | 31.0 | 2.83 | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 50 | 50 | 50 | 100 | | | | | |
| 40 | 7 | 31.8 | 0.96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14 | 29 | 86 | 100 | | | | | |
| 25 | 1 | 32.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | | | |
| 72 | 2 | 32.5 | 0.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 100 | | | | | |
| 57 | 8 | 33.3 | 1.59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 63 | 75 | 88 | 100 | | |
| 73 | 2 | 33.5 | 0.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 50 | 100 | | | | |
| 67 | 1 | 34.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | |
| 80 | 1 | 34.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | | | |
| 76 | 1 | 36.0 | 0.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 98 | 29 | 7.7 | 1.09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 100 | | |
| 99 | 28 | 36.0 | 0.79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 25 | 64 | 100 |



MANEUVER KEY AEROSCOUT, COMBAT SKILLS PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 1 | Preflight/Postflight* |
| 2 | Cockpit procedures* |
| 3 | Hit check* |
| 4 | Initial hover check* |
| 5 | Power check* |
| 6 | Takeoff to hover* |
| 7 | Hovering flight/turns* |
| 8 | Landing from hover/parking* |
| 9 | Normal takeoff* |
| 10 | Normal approach* |
| 11 | Local area orientation* |
| 12 | Traffic patterns* |
| 13 | Airwork* |
| 14 | Safety* |
| 15 | Radio procedures* |
| 16 | Emergency procedures* |
| 17 | Aircraft limitations* |
| 18 | Slopes* |
| 19 | Sim hydraulic failure* |
| 20 | Forced landing* |
| 21 | Hovering autorotation* |
| 22 | Standard autorotation* |
| 23 | Low level autorotation* |
| 24 | Low level/low A/S auto* |
| 25 | Sim antitorque failure* |
| 26 | Sim antitorque failure* |
| 27 | Running landing |
| 28 | Deceleration |
| 29 | Maximum performance takeoff* |
| 30 | Steep approach |
| 31 | Confined area operations |
| 32 | Pinnacle/ridgeline operations |
| 33 | Emergency exits/equipment (oral)* |

## MANEUVER KEY, AEROSCOUT COMBAT SKILLS PHASE

| MAN. NO. | TYPE OF MANEUVER |
|---|---|
| 34 | Use of force trim* |
| 35 | Mast bumping/spine knock (oral)* |
| 36 | Critical conditions (oral)* |
| 37 | Accident/incident procedures (oral)* |
| 38 | Inadvertent IMC procedures (oral)* |
| 39 | Lost communication procedures (oral)* |
| 40 | NVG failure |
| 41 | Use of lights |
| 42 | Minimum lighted area operations |
| 43 | Methods of instruction |
| 44 | Flight planning* |
| 45 | Out-of-ground effect hover check* |
| 46 | Terrain flight operations* |
| 47 | Terrain analysis and map reading* |
| 48 | Terrain flight takeoff* |
| 49 | Terrain flight approach* |
| 50 | Terrain flight navigation* |
| 51 | Cockpit teamwork* |
| 52 | Use of CEOI, KAL 61 & SOP* |
| 53 | Tactical use of instruments* |
| 54 | Inflight mission change* |
| 55 | Target identification (oral)* |
| 56 | Range determination* |
| 57 | Spot report* |
| 58 | Rapid refuel* |
| 59 | Hazards to terrain flight* |
| 60 | Use of M-24 protective mask |
| 61 | FM homing (oral)* |
| 62 | Anti-jamming (oral)* |
| 63 | Simulated underwire device (oral)* |
| 64 | Solo lost procedures |
| 65 | Observation techniques* |
| 66 | Evading enemy fire* |
| 67 | Formation flight |
| 68 | NOE quickstop/deceleration* |
| 69 | Masking/unmasking* |
| 70 | Circling approach* |
| 71 | Call/adjustment indirect fire* |
| 72 | Attack helicopter firing positions* |
| 73 | Target handoff procedures* |
| 74 | Target acquisition* |
| 75 | Tactical instrument flight* |
| 76 | Area reconnaissance* |
| 77 | Route reconnaissance* |
| 78 | Zone reconnaissance (oral)* |
| 79 | Reconnaissance of LZ & PZ* |
| 80 | Guard operations (oral)* |
| 81 | Screen operations (oral)* |
| 82 | Area security operations (oral)* |
| 83 | Covering force operations (oral)* |
| 84 | Initial hover check terrain Flt operations |
| 98 | EFF-6, Aeroscout Combat Skills Midphase checkride |
| 99 | EFF-8, Aeroscout Combat Skills checkride |

# APPENDIX M

# ATTRITION DATA BY PROGRAM

# APPENDIX M

## ATTRITION DATA BY PROGRAM

As part of the institutional evaluation of the 175/40 and 180/20 IERW programs, an examination was conducted of attrition data in the two programs. Two basic comparisons were made between the two programs. The first involved comparisons for seasonally comparable samples of 20 classes each from the two programs. Each sample of 20 classes was comprised of 10 WORWAC (Warrant Officer Rotary Wing Aviator Course) classes and 10 ORWAC (Officer Rotary Wing Aviator Course) classes. The 180/20 sample classes were graduated during the period March-July 1977, while the 175/40 sample classes were graduated March-July 1978. In the tables that follow, the twenty 180/20 seasonally comparable sample classes are referred to as "Group 1," while the twenty 175/40 sample classes are referred to as "Group 2." Group 2 was comprised of the first 20 classes to be graduated from the 175/40 program.

The second set of comparisons was based on a sample of 14 180/20 classes who were trained under the "realigned" 180/20 program. The realignment involved transfer of the UH-1 Contact Transition Phase to a position prior to the Instrument Phase in the IERW phase sequence, the same relative position it occupies in the 175/40 program. The 14 realigned 180/20 classes, which were the last 14 classes to graduate under the 180/20 program, are referred to as Group 3 in the tables. Their attrition data are compared with the "last 14" 175/40 classes who had graduated at the time of the data collection. This 175/40 sample is referred to as Group 4. Again, both the Group 3 and Group 4 samples were comprised of half WORWAC and half ORWAC classes.

ATTRITION DATA BY PROGRAM

Table M-1
(20 Class Comparisons)

| Group | Course | Class Number | Total N at Entry | Graduated with Original Class | | Total Graduates | | Total Attrition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | f | % | f | % | f | % |
| 1 (180/20) | WORWAC | 76-45 | 25 | 9 | 36.0 | 12 | 48.0 | 13 | 52.0 |
| | | 76-47 | 17 | 15 | 88.2 | 15 | 88.2 | 2 | 11.8 |
| | | 76-49 | 26 | 15 | 57.7 | 19 | 73.1 | 7 | 26.9 |
| | | 7T-501 | 36 | 21 | 58.3 | 27 | 75.0 | 9 | 25.0 |
| | | 7T-3 | 27 | 16 | 59.3 | 20 | 74.1 | 7 | 25.9 |
| | | 7T-5 | 22 | 11 | 50.0 | 13 | 59.1 | 9 | 40.9 |
| | | 7T-7 | 37 | 23 | 62.2 | 29 | 78.4 | 8 | 21.6 |
| | | 7T-9 | 37 | 21 | 56.8 | 25 | 67.6 | 12 | 32.4 |
| | | 7T-11 | 35 | 21 | 60.0 | 24 | 68.6 | 11 | 31.4 |
| | | 7T-13 | 21 | 14 | 66.7 | 17 | 81.0 | 4 | 19.0 |
| | | TOTAL | 283 | 166 | 58.7 | 201 | 71.0 | 82 | 29.0 |
| | ORWAC | 76-46 | 23 | 21 | 91.3 | 21 | 91.3 | 2 | 8.7 |
| | | 76-48 | 14 | 12 | 85.7 | 13 | 92.9 | 1 | 7.1 |
| | | 7T-500 | 16 | 11 | 68.8 | 13 | 81.3 | 3 | 18.7 |
| | | 7T-2 | 1 | 1 | 100.0 | 1 | 100.0 | 0 | 0.0 |
| | | 7T-4 | 11 | 8 | 72.7 | 11 | 100.0 | 0 | 0.0 |
| | | 7T-6 | 2 | 1 | 50.0 | 2 | 100.0 | 0 | 0.0 |
| | | 7T-8 | 12 | 11 | 91.7 | 11 | 91.7 | 1 | 8.3 |
| | | 7T-10 | 5 | 3 | 60.0 | 4 | 80.0 | 1 | 20.0 |
| | | 7T-12 | 9 | 8 | 88.9 | 9 | 100.0 | 0 | 0.0 |
| | | 77-2 | 3 | 2 | 66.7 | 2 | 66.7 | 1 | 33.3 |
| | | TOTAL | 96 | 78 | 81.3 | 87 | 90.6 | 9 | 9.4 |

Table M-1
(cont'd)

| Group | Course | Class Number | Total N at Entry | Graduated with Original Class | | Total Graduates | | Total Attrition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | f | % | f | % | f | % |
| 2 (175/40) | WORWAC | 77-35 | 25 | 19 | 76.0 | 22 | 88.0 | 3 | 12.0 |
| | | 77-37 | 30 | 23 | 76.7 | 25 | 83.3 | 5 | 16.7 |
| | | 77-39 | 30 | 21 | 70.0 | 24 | 80.0 | 6 | 20.0 |
| | | 77-41 | 33 | 29 | 87.9 | 30 | 90.0 | 3 | 9.1 |
| | | 77-43 | 26 | 24 | 92.3 | 25 | 96.2 | 1 | 3.8 |
| | | 77-45 | 36 | 31 | 86.1 | 33 | 91.7 | 3 | 8.3 |
| | | 77-47 | 23 | 17 | 73.9 | 20 | 87.0 | 3 | 13.0 |
| | | 77-49 | 20 | 14 | 70.0 | 14 | 70.0 | 6 | 30.0 |
| | | 78-1 | 25 | 12 | 48.0 | 16 | 64.0 | 9 | 36.0 |
| | | 78-3 | 28 | 22 | 78.6 | 23 | 82.1 | 5 | 17.9 |
| | | TOTAL | 276 | 212 | 76.8 | 232 | 84.1 | 44 | 15.9 |
| | ORWAC | 77-36 | 18 | 14 | 77.8 | 17 | 94.4 | 1 | 5.6 |
| | | 77-38 | 18 | 17 | 94.4 | 18 | 100.0 | 0 | 0.0 |
| | | 77-40 | 18 | 16 | 88.9 | 18 | 100.0 | 0 | 0.0 |
| | | 77-42 | 18 | 15 | 83.3 | 15 | 83.3 | 3 | 16.7 |
| | | 77-44 | 14 | 10 | 71.4 | 12 | 85.7 | 2 | 14.3 |
| | | 77-46 | 18 | 17 | 94.4 | 17 | 94.4 | 1 | 5.6 |
| | | 77-48 | 18 | 16 | 88.9 | 18 | 100.0 | 0 | 0.0 |
| | | 77-50 | 21 | 18 | 85.7 | 20 | 95.2 | 1 | 4.8 |
| | | 78-2 | 21 | 15 | 71.4 | 18 | 85.7 | 3 | 14.3 |
| | | 78-4 | 12 | 10 | 83.3 | 11 | 91.7 | 1 | 8.3 |
| | | TOTAL | 176 | 148 | 84.1 | 164 | 93.2 | 12 | 6.8 |

Table M-2
(14 Class Comparisons)

| Group | Course | Class Number | Total N at Entry | Graduated with Original Class | | Total Graduates | | Total Attrition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | f | % | f | % | f | % |
| 3 (180/20) | WORWAC | 77-15 | 23 | 15 | 65.2 | 18 | 78.3 | 5 | 21.7 |
| | | 77-17 | 22 | 16 | 72.7 | 19 | 86.4 | 3 | 13.6 |
| | | 77-19 | 24 | 19 | 79.2 | 20 | 83.3 | 4 | 16.7 |
| | | 77-21 | 23 | 17 | 73.9 | 17 | 73.9 | 6 | 26.1 |
| | | 77-23 | 21 | 14 | 66.7 | 16 | 76.2 | 5 | 23.8 |
| | | 77-25 | 24 | 15 | 62.5 | 19 | 79.2 | 5 | 10.8 |
| | | 77-27 | 20 | 15 | 75.0 | 19 | 95.0 | 1 | 5.0 |
| | | TOTAL | 157 | 111 | 70.7 | 128 | 81.5 | 29 | 18.5 |
| | ORWAC | 77-16 | 15 | 12 | 80.0 | 13 | 86.7 | 2 | 13.3 |
| | | 77-18 | 18 | 12 | 66.7 | 15 | 83.3 | 3 | 16.7 |
| | | 77-20 | 15 | 13 | 86.7 | 14 | 93.3 | 1 | 6.7 |
| | | 77-22 | 15 | 9 | 60.0 | 11 | 73.3 | 4 | 26.7 |
| | | 77-24 | 15 | 15 | 100.0 | 15 | 100.0 | 0 | 0.0 |
| | | 77-26 | 15 | 13 | 86.7 | 14 | 93.3 | 1 | 6.7 |
| | | 77-28 | 15 | 14 | 93.3 | 14 | 93.3 | 1 | 6.7 |
| | | TOTAL | 108 | 88 | 81.5 | 96 | 88.9 | 12 | 11.1 |

Table M-2
(cont'd)

| Group | Course | Class Number | Total N at Entry | Graduated with Original Class | | Total Graduates | | Total Attrition | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | f | % | f | % | f | % |
| 4 (175/40) | WORWAC | 77-41 | 33 | 29 | 87.9 | 30 | 90.9 | 3 | 9.1 |
| | | 77-43 | 26 | 24 | 92.3 | 25 | 96.2 | 1 | 3.8 |
| | | 77-45 | 36 | 31 | 86.1 | 33 | 91.7 | 3 | 8.3 |
| | | 77-47 | 23 | 17 | 73.9 | 20 | 87.0 | 3 | 13.0 |
| | | 77-49 | 20 | 14 | 70.0 | 14 | 70.0 | 6 | 30.0 |
| | | 78-1 | 25 | 12 | 48.0 | 16 | 64.0 | 9 | 36.0 |
| | | 78-3 | 28 | 22 | 78.6 | 23 | 82.1 | 5 | 17.9 |
| | | TOTAL | 191 | 149 | 78.0 | 161 | 84.3 | 30 | 15.7 |
| | ORWAC | 77-42 | 18 | 15 | 83.3 | 15 | 83.3 | 3 | 16.7 |
| | | 77-44 | 14 | 10 | 71.4 | 12 | 85.7 | 2 | 14.3 |
| | | 77-46 | 18 | 17 | 94.4 | 17 | 94.4 | 1 | 5.6 |
| | | 77-48 | 18 | 16 | 88.9 | 18 | 100.0 | 0 | 0.0 |
| | | 77-50 | 21 | 18 | 85.7 | 20 | 95.2 | 1 | 4.8 |
| | | 77-2 | 21 | 15 | 71.4 | 18 | 85.7 | 3 | 14.3 |
| | | 77-4 | 12 | 10 | 83.3 | 11 | 91.7 | 1 | 8.3 |
| | | TOTAL | 122 | 101 | 82.8 | 111 | 91.0 | 11 | 9.0 |

APPENDIX N

DIRECTORATE OF RESOURCE MANAGEMENT
COST EFFECTIVENESS REPORT

APPENDIX N

DIRECTORATE OF RESOURCE MANAGEMENT
COST EFFECTIVENESS REPORT

OBJECTIVE:

The concern of this objective was to provide student performance data and resource data for a cost effectiveness analysis of the 175/40 IERW program. Student performance data provided two important facets of aviation training; Student: IP ratio and aircraft utilization. Resource data sources included student input, student output, student load, aircraft requirements, personnel requirements, and funding requirements to support both the 180/20 and 175/40 IERW programs.

FINDINGS:

Findings will be addressed in two elements: Student Performance and Resource Data. It should be noted that some data cited in the student performance data will also depict resource data i.e. utilization of aircraft and instructor personnel.

Student Performance. During the period 19 Jun 78 thru 8 Sep 78; DRM, Cost Analysis compiled data for evaluation of the 175/40 Initial Entry Rotary Wing Program conducted at the USAAVNC, Fort Rucker, AL. These data were extracted from daily input provided by Branch chiefs and Flight Commanders, Directorate of Training. Data were collected on a locally devised form as shown at Figure 1. As reflected by the data collection form, data were developed in two parts. Part I, Branch Status Report, provided a daily report on the utilization of Flight Instructors within a particular branch and the daily aircraft requirements. Part II, Flight Status Report, provided daily data on each class in residence during the period of evaluation. These data provided the daily number of students trained, number of Instructor Pilots available to conduct training, and the number of flight hours the Instructor Pilot utilized in training for each phase of the IERW training program.

From these data as stated above two important facets of aviation training, Student: IP ratio and aircraft utilization, were evaluated.

Student: IP ratio evaluations are shown at Tables I and II. An analysis of Tables I and II are as follows:

A. Table I and II show identical data elements and reflect essentially the same conclusion. The differences are in the amount of data

175/40 EVALUATION - DAILY STATUS REPORT

ENCLOSURE I - BRANCH STATUS REPORT (Complete one per branch per day)

Division _____ Branch _____ Date _____

| Instructors | | Aircraft | Morning | Afternoon | Night |
|---|---|---|---|---|---|
| Authorized | _____ | | | | |
| Assigned | _____ | | | | |
| * On Loan FROM | _____ | Requested | _____ | _____ | _____ |
| * On Loan TO | _____ | | | | |
| Leave | _____ | Flown | _____ | _____ | _____ |
| Grounded | _____ | | | | |
| TDY | _____ | Rejected | _____ | _____ | _____ |
| Refresher Training | _____ | | | | |
| Awaiting MOI | _____ | | | | |
| MOI | _____ | | | | |
| Overhead Detail | _____ | | | | |

_____
Branch Chief

**********

PART II - FLIGHT STATUS REPORT (Complete one per Flight per day

Date _____

| Phase | Check | * Tng Day | | Students |
|---|---|---|---|---|
| Primary | _____ | _____ | * Class-Section | _____ |
| UH-1 Transition | _____ | _____ | Nr. Assigned | _____ |
| Instrument Flight | _____ | _____ | Nr. Present | _____ |
| Night Flight | _____ | _____ | Nr. Flown | _____ |
| OH-58 Transition | _____ | _____ | Nr. Completed Phase | _____ |
| UH-1 Combat Flight | _____ | _____ | | Instructors |
| OH-58 Combat Flight | _____ | _____ | * Nr. Required | _____ |
| | | | Nr. Avail To Fly | _____ |
| | | | Nr. IP's Flown | _____ |
| | | | * Nr. Flt Cdr/Br Ch Flown | _____ |
| | | | * Nr. Check Pilots Flown | _____ |

Total Instructor Flight Hours

Aircraft _____

SFTS _____

* See special instructions on other side.

_____
Flight Commander

TABLE I

175/40 IERW EVALUATION 27 Nov 78 (1)
STUDENT TO INSTRUCTOR PILOT RATIO

| | PRIMARY | CONTACT | INSTRUMENT | NIGHT QUAL | COMBAT | TOTAL |
|---|---|---|---|---|---|---|
| STU: IP NORM | 3.0:1 | 2.0:1 | 2.0:1 | 2.0:1 | 2.0:1 | 2.2:1 |
| STU ASGD: IP REQUIRED | 3.0:1 | 2.2:1 | 2.0:1 | 2.2:1 | 2.1:1 | 2.3:1 |
| STU ASGD: IP AVAIL | 2.9:1 | 2.2:1 | 2.0:1 | 2.3:1 | 2.2:1 | 2.4:1 |
| * STU FLOWN: IP FLOWN | 2.6:1 | 2.1:1 | 2.0:1 | 2.0:1 | 2.3:1 | 2.2:1 |
| SYLLABUS FLT HRS PER DAY | 1.25 | 1.25 | 1.38 | 1.0 | 1.63 | 1.34 |
| FLT HRS PER STU FLOWN DAILY AVERAGE | 1.05 | 1.25 | 1.36 | 1.13 | 1.43 | 1.23 |
| FLT HRS PER IP FLOWN | 2.77 | 2.62 | 2.70 | 2.23 | 3.29 | 2.76 |
| ANNUAL FLT HRS PER IP | 667.6 | 592.1 | 650.7 | 504.0 | 743.5 | 644 |

* CRITICAL RATIO FOR TRAINING PURPOSES

LV 241 WK DYS CONTR XMAS HOL 25 WK DYS XMAS HOL
226 WK DYS DA
233.5 WK DYS AVG/CONTR & DA

TABLE I (INCLUDES COMPLETE/INCOMPLETE PHASE DATA)

TABLE II

175/40 IERW EVALUATION 27 Nov 78 (2)
STUDENT TO INSTRUCTOR PILOT RATIO

| | PRIMARY | CONTACT | INSTRUMENT | NIGHT QUAL | COMBAT | TOTAL |
|---|---|---|---|---|---|---|
| STU: IP NORM | 3.0:1 | 2.0:1 | 2.0:1 | 2.0:1 | 2.0:1 | 2.2:1 |
| STU ASGD: IP REQUIRED | 3.1:1 | 2.1:1 | 2.1:1 | 2.2:1 | 2.0:1 | 2.3:1 |
| STU ASGD: IP AVAIL | 2.8:1 | 2.3:1 | 2.1:1 | 2.5:1 | 2.3:1 | 2.5:1 |
| * STU FLOWN: IP FLOWN | 2.4:1 | 2.2:1 | 2.0:1 | 2.0:1 | 2.3:1 | 2.2:1 |
| SYLLABUS FLT HRS PER DAY | 1.25 | 1.25 | 1.38 | 1.0 | 1.63 | 1.34 |
| FLT HRS PER STU FLOWN DAILY AVERAGE | 1.09 | 1.26 | 1.46 | 1.11 | 1.31 | 1.31 |
| FLT HRS PER IP FLOWN DAILY AVERAGE | 2.57 | 2.76 | 2.86 | 2.24 | 3.07 | 2.83 |
| ANNUAL FLT HRS PER IP | 619.4 | 623.8 | 689.3 | 506.2 | 693.8 | 661 |

* CRITICAL RATIO FOR TRAINING PURPOSES

TABLE II (COMPLETE PHASE DATA ONLY)

used and the bias contained in data. Table 2 reflects data derived from two complete classes but the data sample is too small to use as conclusive evidence. Table I has sufficient samples to be statistically valid (58 of 260 days) but contains bias due to loss of data from the beginning of phases and end of phases. The different possibilities for errors in the two tables did not produce significant differences in Student: IP ratios, flight hours per student, or flight hours per IP.

B. The tables reflect more IP's available than required in some phases. This increase in availability over required was created by counting Flight Commanders and Branch Chiefs as available when it became necessary for those individuals to fly students. The utilization of supervisory personnel tends to reduce the Student: IP ratio below the actual ratio. Tables 1 and 2 show that the normal staffing ratios developed by the Aviation Training Study Group for the 175/40 concept are reasonable and are being met in spite of the understaffing of IP's within DOFT.

C. The flight hours per student flown tends to reflect some proficiency completion of training phases. There are some other variables that impact on this data such as: set-backs, failure to stay in flight program, etc. These variables were not addressed in the data accumulation phase and further data is not available without extensive effort. The previously mentioned possibility of sampling errors and the proximity of average flight times to the syllabus times did not indicate a need for further data accumulation.

D. The average daily flight hours time for IP's indicates that IP's are being utilized fully. The flight hours in the Combat Skills phase are very near what is considered as safe for an IP in flight time.

E. Based on available data, the indications are that Student: IP ratios and student aircraft ratios of 2:1 and 4:1 respectively are valid goals and are being met as nearly as austere staffing will permit.

Table III reflects the utilization of aircraft under the 175/40 IERW Training Program. An analysis of Table II is as follows:

A. Table III is a summarization of the data for aircraft by phase, airfield, and IERW totals. The data were not accumulated so that student to aircraft ratios could be computed. However, a very close approximation may be obtained by multiplying the Student flown: IP flown ratio, as shown in Tables I and II, by 2 which is the normal flight periods for one aircraft per training day. The result for the entire course would then be 4.4:1 for student to aircraft ratio. The use of an IP in both AM and PM periods does tend to change this ratio; therefore, the result is only approximation.

TABLE III

175/40 IERW EVALUATION
AIRCRAFT DATA

27 NOV 78

| STUDENT: AIRCRAFT RATIO | PROGRAM | ACTUAL |
|---|---|---|
| | 4:1 | 4.2:1 |

| LOCATION | % ACFT REQUESTED/FLOWN | | | % ACFT REQUESTED/REJECTED | | |
|---|---|---|---|---|---|---|
| | AM | PM | NIGHT | AM | PM | NIGHT |
| HANCHEY | 91.9 | 96.2 | 92.9 | 2.1 | 1.0 | 1.6 |
| LOWE | 88.6 | 92.5 | 83.1 | 3.9 | 3.9 | 6.0 |

B. The percentage of flown aircraft appears to be unusually low. An examination of the Training Activity Summary maintained by Lowe Division, Directorate of Training, reflected several reasons for aircraft not being flown. The primary reason during the period 22 Jun - 8 Sep 78 was weather turn backs. Other reasons identified were IP's not available, students not available and early phase completion by the student. It was assumed that weather was the prime cause for turn backs at Hanchey, also.

C. The difference in the percentage of rejects could not be definitely established. The difference is not extensive and the number of variables that could impact on the problem is so great (IP differences, new mechanics, aircraft configuration, fleet age, aircraft types, higher standards for night flight, etc.) that further evaluation would not be effective.

D. The data accumulated reflect effective utilization of aircraft in the training of aviators.

RESOURCE DATA: Resource data is presented in three programs: (1) 180/20 Resource requirements as outlined in the US Army Aviation Training Study, July 1976; (2) 175/40 Projected Resource requirements as outlined in the US Army Aviation Training Study, July 1976; (3) 175/40 Programmed Resource requirements for FY 1979.

These three programs are portrayed in crosswalk diagram at Figures 2, 3, and 4 respectively. All funding requirements are presented in constant FY 79 dollars.

Figures 2, 3, and 4 represent a detailed picture of the resource requirements for the various programs. For a more explicit analysis/ comparison this data has been displayed in Tables IV and V.

Table IV shows the projected total costs for the 180/20 vs 175/40 IERW Program as reflected in the US Army Aviation Study, July 1976. The data indicates that the 175/40 Program was projected to be more expensive than the 180/20 Program. The FY 79 program costs show the 175/40 Program to be less expensive than projected. This is attributed to military personnel reduction due to the reorganization of the Directorate of Training and further reduction in military support personnel as determined by the FY 78 TRADOC Manpower Survey.

The most realistic measurement in Table IV is the Cost Per Training Load which shows the 180/20 cost to be $67.5K versus $74.7K as projected by the Army Aviation Study for the 175/40 Program. The first full year of operation under the 175/40 Program reflects slightly less cost per load ($72.4K) than the projection of $74.7K. This reduction is due to the personnel reductions mentioned above. The Cost Per Training Load was selected as the most realistic due to the course length where production for the following year requires three-fourths of production input to be started in the preceeding fiscal year.

The Cost Per Graduate is shown in Table IV, even though it lacks realism and does not include all the required elements to be comparative to what is generally known as the Cost Per Graduate. Data shows that the 175/40 Program for FY 79 to be less expensive than the 180/20 or projected 175/40 training programs. The low figure is attributed to the previously mentioned personnel reductions and the efficiency of increased production at substantially the same dollar costs (economies of scale).

TABLE IV

COST COMPARISON
180/20 vs 175/40 IERW COURSE
TOTAL COSTS-MPA & OMA ($000)

| | FY 78 | | FY 79 |
|---|---|---|---|
| | 180/20[1/] | 175/40[1/] | 175/40[2/] |
| Costs | 51,737.9 | 57,186.4 | 56,702.6 |
| Average in Resident Training Load | 766 | 766 | 783 |
| Cost Per Tng Load | 67.543 | 74.656 | 72.417 |
| Number Graduates | 845 | 845 | 996 |
| Cost Per Graduate | 61.228 | 67.676 | 56.930 |

NOTES:

1/ Costs and workload are reflected in the US Army Aviation Study, July 1976 - Inflated to FY 79 dollar values.

2/ Cost and workload as reflected in the USAAVNC currently approved FY 79 Annual Funding Program.

Table V reflects the Operation and Maintenance, Army (OMA) cost comparisons. The Cost Per Training Load shows the FY 79 175/40 Program to be more expensive than the 180/20 and the projected 175/40 Program. The upward trend is due to the inflation indices for contract flight instruction exceeding the national norm for contractual services. Here the 180/20 reflects $48.2K versus projected 175/40 at $56.0K and the actual FY 79 175/40 costs to be $57.3K.

TABLE V

COST COMPARISON
180/20 vs 175/40 IERW COURSE
OMA COSTS ($000)

| | FY 78 | | FY 79 |
|---|---|---|---|
| | 180/20 1/ | 175/40 1/ | 175/40 2/ |
| Costs | 36,888.o | 42,868.4 | 44,895.8 |
| Average in Resident Training Load | 766 | 766 | 783 |
| Cost Per Tng Load | 48.157 | 55.964 | 57.338 |
| Number Graduates | 845 | 845 | 996 |
| Cost Per Graduate | 43.654 | 50.732 | 45.076 |

NOTES:

1/ Costs and workload as reflected in the US Army Aviation Study, July 1976 - Inflated to FY 79 dollar values.

2/ Cost and workload as reflected in the USAAVNC currently approved FY 79 Annual Funding Program.

Due to the 175/40 IERW Training Program being a dual-tracked one, other resource savings will accrue to the units in the field. These savings include an approximate 6,625 annual OH-58 flight hours at an annual savings of $324.6K. Based upon current Army Projected OH-58 Aviator Production requirements during the period FY 79-85, there will be a total savings of 46,375 OH-58 flight hours at a total savings of $2,272.4K to the units in the field.

CONCLUSION: Based on the data discussed, it is concluded that the 175/40 Training Program Costs and Student to Instructor Pilots/aircraft ratios are consistent with the US Army Aviation Study, July 1976 projections.

Figure 2

| FLIGHT HOURS: | | WORKLOAD DATA: | |
|---|---|---|---|
| TH-55 | 59,711 | INPUT: | 1,349 |
| UH-1 | 130,652 | OUTPUT: | 996 |
| OH-58 | 15,154 | LOAD: | 783 |

175/40 IERW COURSE - ARMY
OPTION 16 WKS CONTRACT
FY 79

DATE: 6 Apr 79

Costs are reflected in FY 79$ *Does not reflect 1 wk of 2C35 CPT and 1 wk SERE Tng

| | PRIMARY | CONTACT | INSTRUMENTS | NIGHT FLIGHT | COMBAT SKILLS | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| Academic Hrs | 100 | 56 | 105 | 25 | 95/103 | | 381/389 | | |
| Flight Hrs | 50 | 25 | 20 | 20 | 60 | | 175 | | |
| UH-1FS Hrs | - | - | 35 | - | 5 | | 40 | | |
| No of Wks | 8 | 4 | 8 | 4 | 8 | | 32 | | |
| Acft: Type | TH-55 | UH-1 | UH-1 | UH-1 | OH-58 | UH-1 | OH-58 | TH-55 | UH-1 |
| Flyable/Asgd | 74/99 | 19/27 | 24/35 | 16/23 | 10/15 | 35/50 | 10/15 | 74/99 | 94/135 |

| MPR RQMTS | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Instr/Supv | 2 | 2 | | 9 | 13 | 13 | 56 | 9 | 17 | 95 | 4 | 1 | 27 | 23 | 55 | 11 | 55 | | 9 | 75 | 35 | 117 | 2 | 26 | 180 | 65 | 231 | 38 | 84 | 418 |
| School Spt | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | 20 | 184 | 91 | 339 |
| Base Ops | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | | 42 | 98 | 146 |
| USAAC | | | | | | | | | | | | | | | | | | | | | | | | | | | | 88 | | 88 |
| Total | | | | | | | | | | | | | | | | | | | | | | | | | | 115 | 251 | 352 | 273 | 991 |

| Dollars ($000) | | | | | | |
|---|---|---|---|---|---|---|
| MPA (Personnel) | 80.8 | 1,426.8 | 547.7 | 1,217.3 | 2,887.1 | 11,806.8 |
| OMA | (8,713.2) | (7,183.3) | (9,095.2) | (4,554.4) | (11,800.8) | (44,895.8) |
| Personnel | 290.6 | 548.9 | 742.7 | 290.6 | 839.6 | 5,605.6 |
| Flt Tng Contr | 2,822.5 | -0- | 2,850.6 | -0- | -0- | 5,673.1 |
| Flying Hrs | 5,600.1 | 6,634.4 | 4,781.1 | 4,263.8 | 10,901.8 | 32,181.2 |
| Other | -0- | -0- | 720.8 | -0- | 59.4 | 1,435.9 |
| MCA | -0- | -0- | -0- | -0- | -0- | -0- |
| Total | 8,794.0 | 8,610.1 | 9,642.9 | 5,771.7 | 14,687.9 | 56,702.6 |

Figure 3

| FLIGHT | HOURS | WORKLOAD | DATA: |
|---|---|---|---|
| TH-55 | 60,807 | INPUT: | 1,180 |
| UH-1 | 129,296 | OUTPUT | 845 |
| OH-58 | 12,768 | LOAD: | 766 |

175/40 IERW COURSE - ARMY
OPTION 16 WKS CONTRACT
FY 78

DATE: 6 Apr 79

Costs are reflected in FY 79$ *Does not reflect 1 wk of 2C35 CPT and 1 wk SERE Tng

| | PRIMARY | CONTACT | INSTRUMENTS | NIGHT FLIGHT | COMBAT SKILLS | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| Academic Hrs | 100 | 56 | 105 | 25 | 95/103 | | 381/389 | | |
| Flight Hrs | 50 | 25 | 20 | 20 | 60 | | 175 | | |
| UH-1FS Hrs | - | - | 35 | - | 5 | | 40 | | |
| No of Wks | 8 | 4 | 8 | 4 | 8 | | 32 | | |
| Acft: Type | TH-55 | UH-1 | UH-1 | UH-1 | OH-58 | UH-1 | OH-58 | TH-55 | UH-1 |
| Flyable/Asgd | 61/84 | 25/36 | 25/36 | 24/34 | 11/17 | 44/63 | 11/17 | 61/84 | 118/169 |

| MPR RQMTS | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Instr/Supv | 17 | 1 | | 10 | 28 | 18 | 38 | 7 | 18 | 81 | 1 | 9 | 25 | 33 | 68 | 16 | 65 | 6 | | 87 | 100 | 72 | 18 | 25 | 215 | 152 | 185 | 56 | 86 | 479 |
| School Spt | | | | | | | | | | | | | | | | | | 6 | | 6 | | | | | | 41 | 21 | 285 | 67 | 414 |
| Base Ops | | | | | | | | | | | | | | | | | | | 6 | 6 | | | | | | | | 28 | 99 | 127 |
| USAAC | | | | | | | | | | | | | | | | | | 18 | | 18 | | | | | | | | 88 | | 88 |
| Total | | | | | | | | | | | | | | | | 16 | 65 | 30 | 6 | 117 | | | | | | 193 | 206 | 457 | 252 | 1108 |

| Dollars ($000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA (Personnel) | 406.2 | | | | | 1,192.5 | | | | | 587.1 | | | | | 1,929.0 | | | | | [illegible]2.8 | | | | | 14,318.0 | | | | |
| OMA | (8,350.9) | | | | | (6,207.6) | | | | | (8,856.6) | | | | | (6,044.8) | | | | | (10,537.4) | | | | | (42,868.4) | | | | |
| Personnel | 322.9 | | | | | 581.2 | | | | | 1,065.6 | | | | | 91.8 | | | | | 807.3 | | | | | 5,318.1 | | | | |
| Flt Tng Contr | 2,492.7 | | | | | -0- | | | | | 2,668.2 | | | | | -0- | | | | | -0- | | | | | 5,160.9 | | | | |
| Flying Hrs | 5,535.3 | | | | | 5,626.4 | | | | | 4,402.0 | | | | | 5,953.0 | | | | | 9,670.7 | | | | | 31,187.4 | | | | |
| Other | -0- | | | | | -0- | | | | | 720.8 | | | | | -0- | | | | | 59.4 | | | | | 1,202.0 | | | | |
| MCA | -0- | | | | | -0- | | | | | -0- | | | | | -0- | | | | | -0- | | | | | -0- | | | | |
| Total | 8,757.1 | | | | | 7,400.1 | | | | | 9,443.7 | | | | | 7,973.8 | | | | | [illegible],380.2 | | | | | 57,186.4 | | | | |

Figure 4
180/20 IERW COURSE - ARMY
OPTION 12 WKS CONTRACT
FY 78

DATE: 6 Apr 79

| FLIGHT HOURS | | WORKLOAD DATA: | |
|---|---|---|---|
| TH-55 | 94,854 | INPUT: | 1,180 |
| UH-1 | 101,472 | OUTPUT: | 845 |
| | | LOAD: | 766 |

Costs are reflected in FY 79S *Does not reflect 1 wk of 2C35 CPT and 1 wk SERE Tng

| | PRIMARY | CONTACT | INSTRUMENTS | NIGHT FLIGHT | COMBAT SKILLS | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| Academic Hrs | 100 | 56 | 105 | 4 | 103 | | 368 | | |
| Flight Hrs | 85 | 20 | 30 | - | 45 | | 180 | | |
| UH-1FS Hrs | -0- | -0- | 20 | - | - | | 20 | | |
| No of Wks | 12 | 3 | 10 | | 7 | | 32* | | |
| Acft: Type | TH-55 | UH-1 | UH-1 | | | UH-1 | | TH-55 | UH-1 |
| Flyable/Asgd | 95/130 | 25/36 | 34/49 | | | 44/63 | | 95/130 | 103/148 |

| MPR RQMTS | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT | OFF | WO | ENL | CIV | TOT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Instr/Supv | 18 | 25 | 7 | 10 | 60 | 16 | 40 | 7 | 18 | 81 | [illegible] | | | | | 65 | 83 | 15 | 1 | 164 | 174 | 219 | 40 | 86 | 519 |
| School Spt | | | | | | | | | | | | | | | | | | | | | 42 | 21 | 280 | 68 | 411 |
| Base Ops | | | | | | | | | | | | | | | | | | | | | | | 28 | 92 | 120 |
| USAAC | | | | | | | | | | | | | | | | | | | | | | | 70 | | 70 |
| Total | | | | | | | | | | | | | | | | | | | | | 216 | 240 | 418 | 246 | 1120 |

| Dollars ($000) | | | | | | |
|---|---|---|---|---|---|---|
| MPA (Personnel) | 964.2 | 1,227.6 | 3,094.3 | | 3,187.1 | 14,849.9 |
| OMA | (12,063.9) | (5,374.7) | (7,978.5) | | (8,628.0) | (36,888.0) |
| Personnel | 322.9 | 516.7 | 1,905.2 | | 32.3 | 5,226.3 |
| Flt Tng Contr | 3,106.4 | | | | -0- | 3,106.4 |
| Flying Hrs | 8,634.6 | 4,858.0 | 5,530.8 | | 8,595.7 | 27,619.1 |
| Other | -0- | -0- | 542.5 | | -0- | 936.2 |
| MCA | -0- | -0- | -0- | | -0- | -0- |
| Total | 13,028.1 | 6,602.3 | 11,072.8 | | 11,815.1 | 51,737.9 |

# APPENDIX O

# ESSENTIAL ELEMENTS OF ANALYSIS

## APPENDIX O

## ESSENTIAL ELEMENTS OF ANALYSIS

The essential elements of analysis (EEA) were prepared by DES and approved by DT, DTD, and ARI prior to DCDR approval of the 175/40 IERW Evaluation Plan in March 1978. Some 19 EEAs were identified. These EEAs were incorporated into the philosphy of the field and institutional questionnaires which were developed. While some EEAs were asked directly of a questionnaire respondent, others were incorporated into more general type questionnaire items pertinent to more than one EEA.

Each EEA is listed in the appendix, along with the general conclusions pertinent to the EEA. In addition, the primary data sources from which each conclusion is drawn are cited. The general sources of data included:

a. Graduate field questionnaire

b. Instructor pilot field quetionnaire

c. Supervisor field questionnaire

d. Flight line institutional questionnaire

e. Academic institutional questionnaire

f. Maneuver proficiency analysis

g. Flight grades

h. Attrition analysis

## ESSENTIAL ELEMENTS OF ANALYSIS

1. Do IERW trainees need extensive combat skills training, or should it be left to the units?

   Conclusion: According to supervisors and instructor pilots in field units, the IERW trainee is expected to be able to perform a wide range of combat skills to at least an adequate level. In NOE and low level flight the trainee should be competent to perform without assistance. Opinions diverge as to whether NVG should be taught to familiarization or to adequacy.

   Source: [Field questionnaire Section I for Supervisors and for Instructor Pilots.]

2. To what extent are Night and TAC instrument expertise used in the units?

   Conclusion: The extent to which Night and Tactical Instrument expertise was used in the unit was measured by the importance of these task areas to the conduct of operational missions. Night flight skills were considered to be critical or of considerable importance by a majority of supervisors and IPs, but less than 1/3 considered Tactical Instruments as such.

   Source: [Field questionnaire Section I for Supervisors and Instructor Pilots.]

3. Is there any advantage to the 175/40 IERW Aeroscout graduate over the current transitioned Aeroscout pilot?

   Conclusion: The question was addressed to supervisors of Scout pilots only. Majority responses included such statements as: the individual is qualified in the aircraft on arrival in the unit saving aircraft and IP training time (estimated to be 10-20 hours); savings on flight transition time allows more time for mission type training; the individual is ready for single pilot, observer, and scout NOE training.

   Source: [Field questionnaire Section III for Supervisors.]

4. How well do Utility and Aeroscout track graduates fit into the unit as compared to the 180/20 graduate?

Conclusion: Performance of the 175/40 graduates upon their arrival in the unit was measured by the supervisors' response to the adequacy of the IERW training the graduate received. For 30 mission-oriented tasks on which the 180/20 graduate was compared, the supervisors evaluated the 175/40 graduate as more adequately trained on 29 of the 30 tasks.

Source: [Field questionnaire Section II for Supervisors and Section I for Instructor Pilots.]

5. Are 175/40 graduates taught too much compared to the needs of the units?

Conclusion: This EEA was measured by the responses of IPs and supervisors to two questions directed at 125 mission-oriented and specific aviator tasks. Opinions on whether a task should be eliminated or not taught in IERW training produced a slight negative response for only one task, external loads. A total of 16% of the supervisors and 8% of the IPs were of the opinion that this task should not be taught in IERW training.

Source: [Field questionnaire Section I and Section III for Supervisors and IPs.]

6. Is it any easier for a 175/40 than a 180/20 graduate to achieve an ARL 2 level and reach the unit's ARL 1 level?

Conclusion: The 175/40 graduate was able to achieve ARL 2 and ARL 1 levels as readily as did the 180/20 graduate. Also, the 175/40 graduate had significantly fewer flight hours after graduation than his counterpart in the 180/20 when surveyed.

Source: [Field questionnaire Section I for Graduates.]

7. How well do 175/40 graduates compare with 180/20 graduates on initial unit standardization rides?

Conclusion: The 175/40 graduates were evaluated upon their arrival in the unit by their IP on initial performance level as more competent on Instrument, Night, and Aeroscout tasks than their counterpart in the 180/20 program. Initial performance was similar in Basic, Tactics, and Utility tasks for graduates of the two programs.

Source: [Field questionnaire Section I for Instructor Pilots.]

8. When the 180/20 aviator graduates arrived in the field, were they adequately school trained to perform the aviator tasks at the ARTEP 3 or ARL 2 level?

   Conclusion: Within the experience window sampled, 86% of the 180/20 graduates were in ARL 2 or ARL 1 categories.

   Source: [Field questionnaire Section I for Graduates.]

9. When the 175/40 aviator graduates arrive in the field, are they adequately school trained to perform the aviator tasks at the ARTEP 3 or ARL 2 level?

   Conclusion: Within the experience window sampled, 85% of the 175/40 graduates were in ARL 2 or ARL 1 categories. In addition, supervisors responded to the request to list two areas of unit training that require the greatest amount of time for the new graduate to achieve an ARTEP 3 level. The two areas most frequently given were Night operations and NOE flight/navigation. See also EEA #6.

   Source: [Field questionnaire Section I for Graduates.]

10. How well do 175/40 graduates compare with 180/20 graduates in ARTEP training?

    Conclusion: This EEA was addressed by responses from the graduates on mission training and the IP on current performance. ARTEP training was considered to be reflected by the number of times the graduates reported participation in mission training. Relatively more graduates of the 175/40 program reported no participation in mission training, but they had accumulated less flying time due to their shorter time in the unit. Among those reporting mission participation, frequency for the two graduate groups was about the same. The evaluation of current performance by the IP indicated that the 175/40 graduate was more competent than the 180/20 graduate on Instrument, Night, and Utility tasks. Current performance for graduates of the two programs was similar on Tactics and Basic tasks. On Aeroscout tasks, the Aeroscout transitioned aviator was considered more competent than his dual track counterpart.

    Source: [Field questionnaire Section II for the Graduate and Section II for the IP.]

11. Are 175/40 graduates better prepared to meet today's high threat standards?

Conclusion: Preparation to meet today's high threat was couched in terms of the aspects of threat doctrine in which the new graduate was best and least prepared. Supervisor responses in this area were ambiguous with the same three facets, enemy identification, air defense, and terrain flight, considered both best and least prepared. Responses of the IP were by graduate track: The Aeroscout track graduate was best prepared in threat IP and NOE; least prepared in SERE. The few responses for the Utility track graduate identified NOE as best prepared, and threat ID as least.

Source: [Field questionnaire Section III for Supervisors and IPs.]

12. Are 175/40 graduates more knowledgeable on threat doctrine and tactics than 180/20 graduates?

Conclusion: The low response of the IPs to the question on threat doctrine does not allow for a comparative statement of knowledgeability. The areas of best and least preparation for the 180/20 graduates were the same as for the 175/40.

Source: [Field questionnaire Section III for IPs.]

13. Does the unit save training time in preparing the 175/40 graduate to meet the unit's mission as compared with 180/20 graduates?

Conclusion: The 175/40 graduate is more readily available to participate in unit missions than the 180/20 graduate as indicated by the IPs evaluation of initial graduate performance. The 175/40 graduate is capable of achieving an ARL 1 or ARL 2 level in a shorter period of time with less unit flight hours. Among field supervisors, 40% indicated the dual-track program will be of great assistance and reduce unit training requirements. Estimates of such reduction ranged 10-20 hours. Among field IPs, 29% indicated it would be of great assistance. This EEA is addressed in EEAs 3 and 10 also.

Source: [Field questionnaire Section II for IPs, Section I, for Graduates, and Section III for Supervisors.]

14. Does current Army methodology adequately prepare units to fully use the dual track graduates?

Conclusion: The integrity of the dual track concept is maintained by the units to a considerable extent. A low percentage of dual track graduates are cross-assigned to another type of aircraft, i.e., UH-1 to OH-58 (7%) and the converse (5%). The Aeroscout track is least affected by assignment to other aircraft. Assignment to the AH-1 accounts for a small percentage loss (10%) from the Utility track. Utilization of the dual track graduate in the units' mission is at the same relative frequency as the 180/20 graduate. One specific area noted in which the 175/40 graduate is not fully utilized concerns the use of NVG.

Source: [Field questionnaire Section I and II for Graduates.]

15. What individual training tasks should be subtracted/added to the 175/40 program?

Conclusion: Individual training tasks included in the 175/40 program were more in need of additional emphasis rather than the addition or subtraction of tasks. Additional emphasis was cited for 15 aviator tasks by at least 10% of the supervisors whereas four tasks were indicated that should be added. These added tasks included: Instrument flight planning; preflight maintenance; navigation/map reading; and load operations (night and day to include weight and balance). Only one task, submitting reports, was identified for subtraction. Additional emphasis was specified for eight aviator tasks by at least 10% of the instructor pilots in contrast with no tasks to be added or subtracted to the program.

Source: [Field questionnaire Section III for Supervisors.]

16. Do the skills of 175/40 graduates vs. 180/20 graduates make it easier for them to flow into a dynamic unit training program?

Conclusion: The skills of the 175/40 graduate are generally more supportive of unit needs than those of the 180/20 graduate. This area is addressed in EEAs 3, 4, 6, 7, 8, 9, 10, and 13.

Source: [EEAs 3, 4, 6, 7, 8, 9, 10, and 13.]

17. Does 175/40 tactics training fit into present and future threats?

Conclusion: The content of 175/40 tactics training appears generally responsive to current threat as perceived by field supervisor and IP personnel. Areas of suggested additional emphasis or addition are identified in EEA 15. Future threat responsiveness was not assessed.

Source: [EEA 15.]

18. Are the 175/40 Aeroscout track aviators being utilized as Aeroscout aviators?

Conclusion: Yes. See EEA 14.

Source: [EEA 14.]

19. Are the 175/40 Utility track aviators being utilized as Utility aviators?

Conclusion: Yes. See EEA 14.

Source: [EEA 14.]

# APPENDIX P

# IERW EVALUATION/MONITORING MODEL

APPENDIX P

IERW EVALUATION/MONITORING MODEL

Objective VIII of the 175/40 IERW evaluation plan was "to develop a model for monitoring and evaluating progress and changes in the IERW program in the future." The model presented is actually two fold, in that it deals with both short-range and longer-range time periods. The necessity for this temporal division stems from consideration of the types and characteristics of data inputs that exist or are feasible within the present or near-term future time frame, and of data input types that would be desirable and possible in the longer-term future. Procedural requirements are presented for the model monitoring and evaluation functions prescribed in the objective as they may be implemented in each time period, and for the function of course content validation. For convenience in the present disussion, the model will be referred to here as VEMM (Validation, Evaluation and Monitoring Model). This will allow its clear distinction from other related models and their acronyms or abbreviations.

The functional requirements for the VEMM model derive from the process and the product of IERW training. In terms of the monitoring function, the concern is with the process of IERW training. Thus, as discussed on pages 11-12 of the basic report, monitoring is an internal-to-USAAVNC function. Its purposes are primarily related to the maintenance, adjustment, and day-to-day management of the IERW training system. Evaluation and validation functions, on the other hand, are concerned with criteria external to the USAAVNC IERW training process. These criteria concern the extent to which the training system product, i.e., the IERW graduate, is meeting the needs of the operational units in the field, and the appropriateness of the content of IERW training to field job requirements.

A further aspect of the VEMM model development concerns its relationships to existing Army training development and management systems and to currently available data inputs. The VEMM model necessarily interacts with such systems. Where such interaction is required, the other system or activity will be cited, and certain of its characteristics described as necessary to the understanding of the VEMM model. However, no attempt is made here to describe such other systems in a complete or extensive manner. They are treated as extant systems or activities that are documented in other sources.

The major such systems of interest are the current Uniform Flight Grading System (UFGS)[1] and Aviation Management Information System

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[1] USAAVNC Reg. No. 350-16. The Uniform Flight Grading System, U.S. Army Aviation Center, Fort Rucker, Alabama, December 1970.

(AVMIS)[1] in use at USAAVNC, and the TRADOC Instructional System Development (ISD)[2] activity that guides most training development and evaluation activities within TRADOC. Another existing activity or program of considerable import to the present model is the existence of the various Aircrew Training Manuals[3] that define operational job task, skill, and performance requirements for each aircraft system.

In addition, two system development efforts currently underway at the Army Research Institute, Fort Rucker, are of particular concern to the longer-term model. These are the development of a more objective flight Performance Measurement System (PMS),[4] and the development of a Training Management Decision Model (TMDM).[5] As will be noted, the short-range VEMM model suffers shortcomings, principally with reference to quality of currently available data inputs. Improvements for the longer-range VEMM model are dependent on improvements in data input type and quality, which, in turn, are heavily dependent upon the successful accomplishment of developments such as PMS and TMDM.

## SHORT-RANGE VEMM MODEL

The short-range model is construed as one that can be implemented utilizing currently used, or feasible to develop, techniques, procedures, and data inputs.

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[1] U.S. Army Aviation Center. Aviation Management Information System. Management Information Systems Office, U.S. Army Aviation Center, Fort Rucker, Alabama, March 1977.

[2] TRADOC Pamphlet 350-30. Interservice Procedures for Instructional Systems Development. U.S. Army Training and Doctrine Command, Fort Monroe, Virginia, August 1975.

[3] See, for example:

DA TC 1-135. Aircrew Training Manual: Utility Helicopter (draft). Department of the Army, Washington, D.C., 1978.

DA TC 1-137. Aircrew Training Manual: Observation Helicopter (draft). Department of the Army, Washington, D.C., 1978.

[4] Siering, G. D. Requirements for a Computer-Based Training Management Data Base (in press). Canyon Research Group, Fort Rucker, Alabama, 1979.

[5] Childs, J. M. The Identification and Measurement of Critical IERW Performance Variables (in press). Canyon Research Group, Fort Rucker, Alabama, 1979.

Monitoring

The purpose of IERW monitoring is primarily to allow USAAVNC to manage the training process so as to maintain its quality over time and to allow assessment of results of training changes that may be made. For these reasons, a critical requirement for effective monitoring is valid performance data and rapid data analysis and information transmission. Further, since it is at the training phase level that adjustments or interventions in the training process must occur, monitoring is aimed principally at providing information to those who execute and manage the various training phases.[1] However, it is also required that USAAVNC monitor training on an inter-phase basis as well as within phase, so that possible effects of preceding or succeeding phases can be examined.

The monitoring function in the short-range VEMM model is constrained by the subjective grading system currently in use at USAAVNC. As discussed on pages 51-52 of the basic report, subjective grading presents a variety of problems. Inter-student discrimination typically is restricted in subjective flight performance measures, and, consequently, the sensitivity of such measures to training changes is minimal. In addition, the subjective system based on A, B, C, and U (or 90+=above average; 80-89=average; etc.), or similar designators, is by definition a self-adjusting, self-actualizing system. That is to say that by definition and design the "average student" concept is adjusted by the instructor to fit changes in the training process. There may be an initial perturbation in grades after a training change, but it is likely that the system will stabilize eventually around a new concept of "averageness."

The maneuver letter grades currently in use appear to lack sufficient sensitivity to respond in a robust manner to progress and change in the training process because of these problems. The special (+) and (-) daily maneuver proficiency grades used in the current evaluation[2] might offer some improvement, since they are ostensibly grounded in criterion-referenced performance standards. Further, as the Aircrew Training Manuals become better established, they will provide a means for a criterion-referenced measurement system that is common to USAAVNC and the field, one that is more sensitive to changes in performance. For the present, however, such measurement is not a part of the ongoing system.

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1 See pages 9-11 of the basic report for a discussion of IERW training phases.

2 See pages 20-21, and pages 41-48 of the basic report for discussion of the maneuver proficiency grades.

The numerical end-of-phase checkride grade is the best currently available input to support the monitoring function. It is an input to the AVMIS system and is compiled on a class-by-class basis through computer analysis. Mean grade summaries can be provided through AVMIS by class, by instructor, and by checkpilot. This will allow monitoring of the overall phase instructional process, the system-student interface (i.e., the instructor), and the system measurement mechanism (i.e., the checkpilot instructor).

Utilizing the end-of-phase checkride grade, monitoring would be accomplished as follows:

- Phase grades for approximately 10 WORWAC and 10 ORWAC classes would be assembled either from AVMIS or grade record files. This would yield a base group N of about 300 for each student type for the phases through the Night Phase; approximately 225-240 for the Combat Skills Phase Utility Track; and 60-75 for the Combat Skills Phase Aeroscout Track.[1]

- The overall mean (M) and standard deviation (S.D.) would be computed for each phase by student type. The overall mean for each phase would serve as the baseline against which to compare subsequent class phase means in the monitoring process.

- Based on the best estimate of the population S.D. (i.e., the S.D. computed over the 10 base classes), the standard error of the mean (S.E.) could be computed and tabled for a range of numbers that would encompass the expected class sizes during any input period (e.g., N=10, N=15, N=20, N=25, etc.).

- Deviation limits or tolerances about the baseline mean could be established for each phase to evaluate deviation of specific future classes from the overall mean. Deviation limits are somewhat arbitrary, but values at the .15, .05, and .01 probability levels (one-tailed) are recommended to be established in units of S.E.

- A determination of significant deviation from the baseline phase M value would then be as follows. A single class deviation at the .01 level would warrant serious examination of the training cause. Deviation in the same direction by two successive classes at the .05 level, or one at the .05 and one at the .15 levels, would also

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[1] Over time, the numbers of persons in the base groups for the two training tracks should be increased to provide added stability to baseline indices.

warrant examination. If deviation did not go beyond the .15 level, three successive classes deviating in the same direction would be required to warrant investigation.[1]

Information from this monitoring can be displayed graphically or in tabular form. This will permit assessment of the instructional effects of program changes or other factors for each phase of IERW to the extent that current grade data are sensitive to such effects. This procedure can be varied to monitor individual instructor and checkpilot performance as well as that of classes.

Another measure appropriate to the monitoring of progress and change in the training process, a measure used in the current evaluation, is the percentage of students who graduate with their original class. This percentage value is related to the efficiency of training. Baseline data are provided in the report (Table 20) separated by student type. To serve the monitoring function these data could be presented graphically on separate charts with a boundary limit of deviation indicated (e.g., 10 percentage units below baseline). A deviation of 10% is suggested due to the wide variation from class to class. Upon completion of each phase of training, each class percentage completing that phase would be plotted. Continued deviation below the baseline would suggest remedial action be taken.

The purpose of such process monitoring is to allow assessment of system functioning and results of changes in the system. Assuming that a problem deviation is detected, the next step is timely corrective action. Training system analysis and modification are beyond the scope of this model. However, the monitoring function, as described here, should be viewed as an input to Phase V of the ISD model. The ISD model defines appropriate steps to revise or adjust the instructional process based on internal (process) evaluation indices.

Evaluation

For the present, the method used in the current evaluation should be adequate to provide a user assessment of the IERW training product as indicated by the findings reported herein. The questionnaires administered to unit instructor pilots and supervisors are available, with minor additions, for the assessment of the IERW multi-track product. The three

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[1] Deviation downward, i.e., a lowering of M grade, is undesirable, while upward deviation is desired. However, the self-adjustive nature of the subjective grade makes it unlikely that deviation will be sustained. The .01 level of significance is used because it indicates a greater likelihood that a real change has taken place and warrants corrective action.

main areas for assessment appear to be: the IERW graduate's initial performance upon arrival at the unit; his performance 3-6 months after arrival; and his performance on mission-oriented tasks. The first two areas are covered in the unit instructor pilot questionnaire (Appendix C). The third area is covered by the unit supervisor questionnaire (Table 4, and Appendix I). Details for implementation and data collection are given in the report (pp. 19-21). Contained in the questionnaires are question blocks directed specifically to UH-1 and OH-58 aviators (Appendix C-10). Similar blocks of questions relevant to AH-1 and CH-47 aviators would need to be added to cover multi-track training. These items are available at the Directorate of Training Development.

As noted under "Monitoring," the detection of undesired outcomes by the evaluation process should be followed by corrective action through the ISD procedures. This sequence of develop-evaluate-modify-evaluate should be an iterative adjustive process that occurs throughout the life of the training system. The evaluation outcomes are also pertinent to the adjustment of the ATMs in the future.

Validation

The function of validation of the content of IERW training, i.e., the determination of whether USAAVNC is teaching the tasks and skills required in the field and to the proper level of proficiency, can be handled through the same basic mechanism as described for evaluation. The questionnaire items concerning IERW training emphases, tasks recommended for deletion/addition to IERW, levels of proficiency desired, and the like, provide a means for assessing the appropriateness of IERW content. The ATMs and their future revisions also provide an input to validation. Validation outcomes requiring adjustive or corrective action would also be cycled into the ISD program.

Procedurally, validation would be through questionnaire administration as described above. In-depth interviews or on-site observation at field locations could provide an alternative or supporting mechanism, but the cost is high, and the process is time consuming. However, the Directorate of Evaluation and Standardization does make periodic visits to field units, and these visits should be utilized to the maximum extent possible for such interviews and observations.

## LONG-RANGE VEMM MODEL

As noted, improvements in the effectiveness of the VEMM model, particularly with respect to the monitoring and evaluation functions, are primarily dependent on the achievement of a more objective flight performance measurement system. Further, improved flight performance measurement

must cover the school and unit settings if overall model effectiveness is to be maximized. The validation function for the future can generally be handled adequately through existing questionnaire and field interview procedures.

As has been noted, the PMS and TMDM development efforts currently underway are critical to progress in the measurement and data management areas. Other R&D efforts, both in the Army and elsewhere, also offer hope of significant advances in performance measurement technology that may benefit VEMM.

Monitoring

Assuming that a more objective flight grading system is introduced in future IERW training, the full potential of the system will not be realized unless two conditions are satisfied: (1) the instructors must be given special training to use the system effectively; and (2) the information generated by the objective grading, to be fully utilized in an accurate and timely manner, must be supported by a computer-based processing system.

The criticality of instructor training to effective performance measurement has been established time and again in research studies. As noted on page 50 of this report, current IP MOI training does not treat objective or criterion-referenced measurement, so the future VEMM system must presume the development and implementation of appropriate training for instructors and for standardization pilots.

The implementation of more objective grading procedures will have several benefits for VEMM. First, the quality of data should be enhanced (validity, reliability, reduction of rater bias and inter-rater differences, etc.). Second, the data will relate to actual student (or graduate) performance--i.e., did the student perform the item or not; to what level (ideally, in quantitative terms) did he perform; what precise errors are made; etc.--rather than relating to whether the student is similar to, worse than, or better than the hypothetical "average" student at some given level of training. The advantages for diagnostic and corrective functions of having such details about actual performance, rather than subjective relative ratings are considerable. Related to this is the fact that an improved measurement system will provide much more detail for the monitoring process than is presently the case. This dictates the advisability of a computer-based processing system such as described by TMDM.

The first level of monitoring, upon implementation of an objective grading system, is to provide assurance that the practices and procedures required for system operation are carried out. A mechanism to insure

that this is done needs to be devised so that a high proportion of class members (preferably all) are graded on all maneuvers within a phase. The successful accomplishment of procedural requirements at the initial monitoring level should greatly enhance the capability to monitor and evaluate IERW training.

At the second level of monitoring, objective maneuver grades would be averaged by class for each maneuver. A baseline mean value and deviation limits for graphic or tabular representation could be obtained in the same manner as described earlier. However, the data would be percentage of items correct (or errors) rather than the subjective grade. Displays would be available for inspection and for the posting of mean values of subsequent classes with respect to baseline and deviation limits for each maneuver in a phase. Upon detection of an undesirable maneuver deviation, the analysis could be pursued at the individual performance item level following similar procedures. To obtain a phase grade for a student, maneuver grades could be summed or averaged, dependent upon the effectiveness of initial level monitoring. The objective checkride grades provide an internal criterion measure with which to associate student maneuver grades.

The objective grading system would also provide a more reliable base for assessing instructor pilot performance. At a general level, the maneuver phase grades of the instructors' students would be averaged and compared to the overall mean for that phase. Should continued deviation for a particular instructor be observed, examination at the detailed levels of maneuver or item would be appropriate.

At the third level of monitoring, the concern would be with the mean maneuver and mean phase grades for a class and with measures of overall class performance for the entire program of instruction. This latter measure would be a weighted measure of phase grades and would be treated on a class-by-class basis for portrayal as previously described.

It is presumed that any indicated corrective action would be input to the ISD process as previously described. However, institution of a quad-track IERW training program in the future will make the management of this corrective process even more complex.

Evaluation

The procedures described in this section are focused on the future, since they assume the availability of an objective grading system. A procedure which is customary to field evaluation by USAAVNC-based personnel, i.e., the standardization instructor pilot (SIP) checkride, is a consideration at this time. The development of an objective grading system is a central feature of future field evaluation, and, thus, it is considered mandatory that the SIP receive the same specialized training in the system as the IERW instructor pilot.

One of the tasks of the SIP on a unit site visit would be to confirm that the questionnaires are distributed to target personnel identified in the prior planning and that the questionnaires are properly completed. The IERW graduates identified for questionnaire rating by unit instructor pilots and supervisors would constitute the pool from which the SIP would draw a sampling of candidates for standardization checkrides. The standardization checkride should contain the same flight maneuvers, on a selected basis, as taught in IERW training, and the objective grading procedures and practices should be the same as those used in IERW training. Grades from the graduates' standardization ride for the selected maneuvers then can be correlated with the same individual student grades on the same maneuvers given in IERW training. This procedure provides a measure of the reliability of IERW training and of the predictive validity of training grades. Another measure of the predictive validity of IERW grades may be obtained by the correlation between the supervisors' ratings of the graduates on mission-oriented tasks and the graduates' final phase grades or his final end-of-course grade. In addition, the unit instructor pilots' questionnaire ratings of the graduates can be correlated with the SIP grades on the same maneuvers to obtain a measure of questionnaire validity.

Procedurally, the evaluation function would operate in a manner similar to that previously described. A principal difference would be the institution of objective measures of actual performance in the field as an addition to the rating and questionnaire data. It can also be anticipated that the Aircrew Training Manuals will become more effective in the future as instruments for defining the field job requirements for aviators and for defining the standards of performance required. Further, while evaluation corrective actions will still be input to the ISD process, it can be anticipated that ISD will devote more attention to unit training in the future and that the evaluation function will feed ISD corrective actions both at USAAVNC and at the unit.

## Validation

As noted previously, validation procedures for the long-range VEMM model will likely be quite similar to those currently available. While more elaborate systems (e.g., the USAF CODAP[1] system) might well be worth considering, they should be examined carefully from a cost-benefit point of view before their adoption. Also, the ATM role will continue to expand in terms of defining the content appropriate to IERW. Recurring validation is necessary to an effective instructional system and to making it responsive to actual field needs.

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[1] CODAP is the acronym for the USAF Comprehensive Occupational Data Analysis Program. For information, see:
Christal, R. E. The United States Air Force Occupational Research Project. AFHRL-TR-73-75. Air Force Human Resources Laboratory, Brooks Air Force Base, Texas, January 1974.

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